RAILROAD GAZETTE

FRIDAY, OCTOBER 24, 1879.

The Hall Automatic Electric Railroad Signals.

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The "block system" has been generally acknowledged by competent authorities as the safest system for working railroad signals and conducting traffic. Notwithstanding this fact, it is used to only a very limited extent on even our busiest railroads.

If we inquire into the reason for this, we shall find that it is largely due to the imperfection of most of the appliances which are used in operating this system, and that they do not completely eliminate errors and thus make it practically infallible. Late improvements in these appliances—such as the apparatus of Messrs. Saxby & Farmer, known as the "union of the block and interlocking systems" and the 'electro-semaphores" used on some of the French railroads—which have been described in these pages, have contributed greatly toward perfection, and thus, it is thought, should have overcome the objection to the introduction of the block system.

There is, however, still another and probably even stronger objection, which is purely econominal. New appliances require an outlay of capital; and the cost of maintaining and operating them would swell considerably the working expenses of a railroad. It is this last expense to which the managers of our roads are mostly averse. In Europe the great number of watchmen employed on railroads—as, for instance, in France in connection with electro-semaphores—is advantageously used to attend to the signals also, but the small number of employés of this class on our roads would make it necessary to engage new men for this work.

We will not discuss here whether this extra expense would be repaid in the end, but attention will be called to the efforts of American inventors to annul this obstacle in the progress of the system, by devising such appliances as will act automatically without the intervention of attendants.

Such automatic signals, invented by Mr. Thos. S. Hall, are already in operation on some of the New England railroads. They combine the block with the interlocking system, and have been worked out with remarkable inventive skill.

The manner in which they are operated being different from that of other signals purporting to have the same object, it needs to be understood before the mechanism of the apparatus can be clearly comprehended. For this purpose, plans of a portion of the open road, between stations, and also at a station, with some side-tracks, are represented in figs. 1 and 2, respectively.

Referring to fig. 1, each line is divided into sections, at the entrance of each of which are erected two signals: one called the "danger signal," and the other the "safety signal." The form of these signals will be shown in detail drawings, and now it will suffice to say that they are of the disk form, visible, when displayed, through circular openings made in boxes in which they are inclosed. They are placed on posts of sufficient height to be conspicuous. The "danger signal" is placed immediately at the entrance to a section, and the "safety signal" some 1,000 feet farther. The disk of the first is red, and that of the second is blue; but this difference is not essential to the system, and both of them can be of the same color. From the difference in names of the two signals, it should not be concluded that the one when displayed means *danger*, while the other when displayed means *safety*, as either of them in this position is the signal of danger, and thus stops the advance of a train. The name of "safety signal" was given to the one because it gives the means of a constant control of the working order of the apparatus, which must be observed by the locomotive driver. Any derangement of the signals, being thus easily discovered by the first train passing, would be reported at the nearest station—the train having passed over the section cautiously—and the damage could be speedily repaired.

The signals are acted on by electric currents, being connected by wires with a battery. At all times, when one of the two signals is displayed, the other is hidden from view—the change of the position of one of the signals causing the reversal of the other. The way in which this is effected will be described below.

An examination of the plan, fig. 1, will show that the signals at *C* and *D* on the "up line," and at *M* and *N* on the "down line," have their "danger signals" hidden, and the "safety signals" displayed, as indicated by the black spots in the engraving. This position of the signals indicates that the corresponding sections are not occupied, and that trains may therefore run over them. The signals at *B* have just the reverse position, in consequence of the section *B C* being occupied by a train. If a train on the section *A B* were now to arrive at *B*, it would find that the "danger signal"—which is the first which would be seen—was displayed, and thus the section *B C* would be blocked. But the first train, which then occupies the section *B C*, arriving at *C*, finds the "danger signal" hidden from view; it therefore advances and enters the section *C D*. At the moment when the train enters this new section, the following action occurs: The "danger signal" at *C* displays itself, and the change of its position causes a change of position of the "safety signal." The train arriving next in sight of the "safety signal," and finding it hidden from view, does not stop, but proceeds further. This position of the "safety signal" indicates to the engineman that the "danger signal" behind him has been displayed to protect his train. Should he, however, find the "safety signal" displayed on his approach to it, he would know that something was wrong with the apparatus, and would proceed cautiously over this section, reporting the derangement at the nearest station.

This reversal of the signals is effected by means of an electric current, closed by the action of a wheel of the passing train which depresses a lever of a "track-instrument" (see in fig. 1, "track-instrument closes section *C D*"). This track-instrument is placed in close proximity to the "danger signal." Although the train has entered the section *C D*, the section *B C* remains still closed by the undisturbed position of the signals at *B*, and it is not until the train reaches a second track-instrument (see in fig. 1, "track-instrument opens section *B C*"), which is placed about 1,600 feet from *C*, that a circuit acting on the signals at *B* reverses their position, and thus opens the section *B C* for traffic.

It will be noted here that the train is already well protected by the signals from the rear, when the section behind is opened for a succeeding train.

The same operation continues along the whole line as the train proceeds from section to section.

In fig. 2 is illustrated the application of Hall's signals to a depot which possesses several switches, side and cross-over tracks, and a roadway crossing. On either track, about a mile each way from the station, is seen a track instrument marked "Strikes bell at road crossing." A train passing over one of these instruments closes a circuit which strikes an electric bell at the watchman's house at the road crossing, notifying the watchman of the approach of a train, and he then closes the roadway against ordinary traffic. The use of the locomotive steam whistle is thus replaced by an electric bell. The approach to the depot is protected by two distant signals, the "danger" and the "safety signal," in exactly the same manner as the entrance to a block section on the open road, as described above. But, it being advisable that the station agent and the passengers be notified in time of the approach of a train, the reversal of the signals from *safety* to *danger* causes an electric bell, placed at the station, to strike. Each line has a separate bell. These bells, being of distinctive tones, indicate also the directions from which the trains approach. This is another instance of the suppression of the use of the steam whistle.

The track instruments which open the way to the depot, are placed at the other extremities of the depot, as shown in the plan.

To enable the station agent to operate the distant signals from the station—the necessity of which may sometimes arise, as, for instance, when the passengers are crossing the "up line" to take the "down line" train, in which case the "up line" should be closed—a hand instrument is placed there, with which the signals can be set either at *danger* or *safety*. The instrument is locked, and the key of it is in the possession of the agent.

The switches are interlocked with the distant signals, by means of "switch instruments," in such manner, that whenever a switch is set wrong to one of the main lines, the respective signals will display *danger*—if they were not previously in that position—and remain so, unaffected either by the track or the hand instrument, until the switch is set back for the main line, when the signals will be set automatically to safety. Should a switch be placed at a long distance behind the station, in order not to prevent a train from approaching the station, a special switch signal, operated by the instrument of this distant switch, may be erected. Such special switch signal is shown in the plan on the left-hand side of the station, which is operated by the instrument of the second switch, connecting the side-track with the "up line," as marked. There is a three-throw switch on the "down line," to the left of the station, which communicates with a side and a cross-over track. The instrument connected with this switch sets the "down line" distant signals at *danger*, whichever way the switch is thrown wrong to the main line.

(TO BE CONTINUED.)

Figure 1.

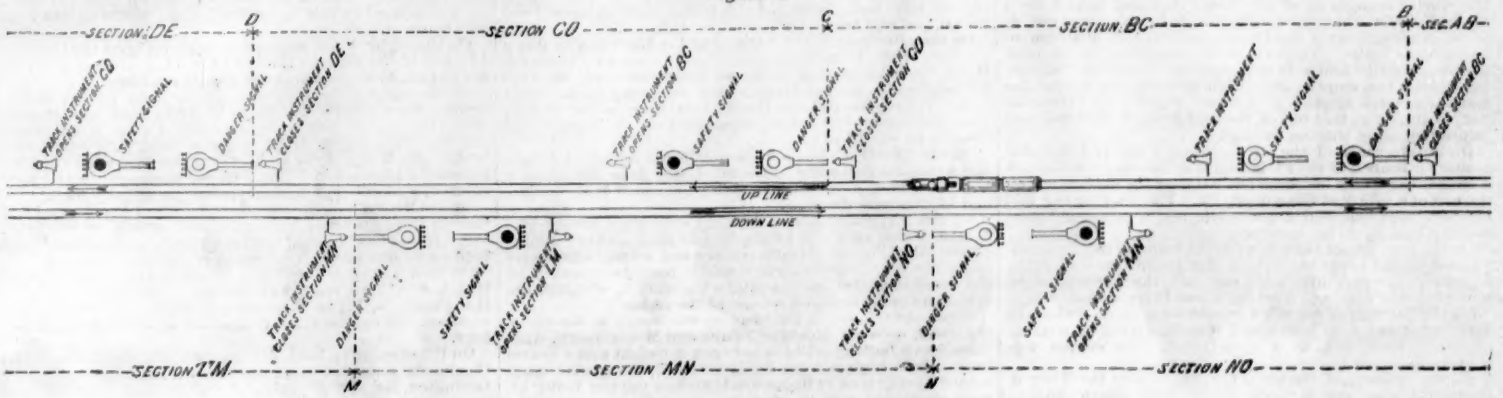
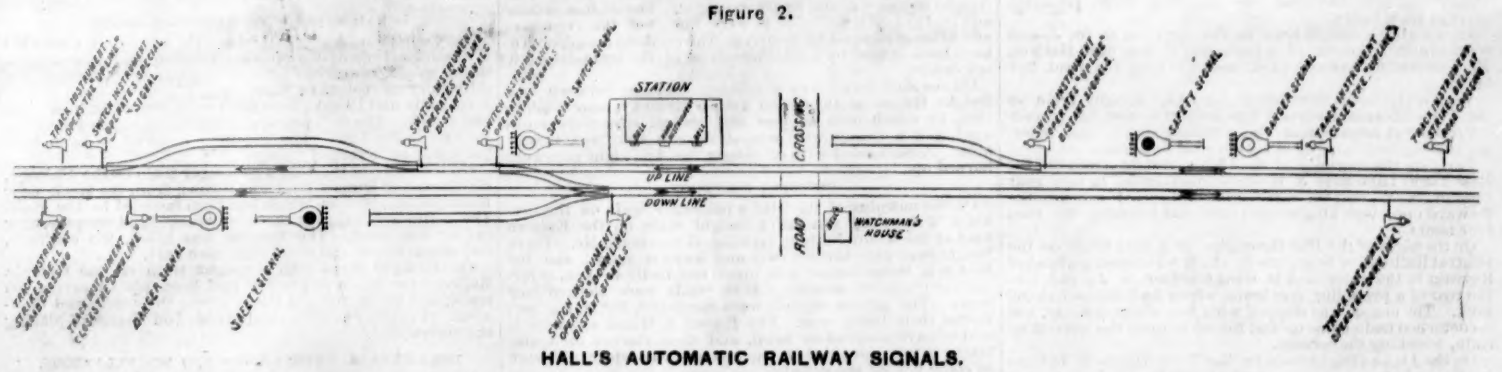


Figure 2.



HALL'S AUTOMATIC RAILWAY SIGNALS.

Contributions.

The Jackson Collision.

TO THE EDITOR OF THE RAILROAD GAZETTE:

Although I have not read very fully the accounts of the Jackson accident on the Michigan Central Railroad, and of the after investigation, I gather from what I have read—including your own article of the 17th inst.—that the conductor of the train switching, or the engineer of the same if there was no conductor proper, did not follow what seems to be one of the most vital rules of railroad operation, viz., "to protect his train when occupying the main track for any other purpose than running over it on his regular time clear

of the time of regular or delayed trains of a superior class, by danger signals placed at a proper distance."

Therein it seems to me is the gist of the matter as in the Wollaston accident on the Old Colony road.

The narrowness of the directors of a road may prevent the manager from erecting distance signals. The exigencies of operation may require freight trains to get out on the main track in the way of delayed trains, but if the above rule is enforced, no accident can occur in any such case as the Jackson one, and unless there was some very unusual evidence developed in the Jackson testimony bearing on this point, it seems to me, therefore, that the person actually in charge of the switching train, conductor or engineer as the case may be, was in this case, as at Wollaston, the one to blame.

SAFETY.

Train Accidents in September.

The following accidents are included in our record for the month of September:

REAR COLLISIONS.

On the morning of the 1st a freight train on the Central Railroad of New Jersey, ran into a coal train which was crossing over from the east to the west-bound track at Bloomsbury, N. J. The freight engine and several coal cars were damaged.

On the afternoon of the 3d a car broke loose from a freight train on the Pennsylvania road in Allegheny, Pa., and ran back down a grade into a siding and struck another car standing there, wrecking both cars.

On the 5th, as a freight train on the Boston & Albany road was going up the long grade above Washington, Mass., two sections, first one of 18 cars and then one of nine cars broke loose from the train of 35 cars, just as it reached the top of the grade. The train hands gave up at once for lost as the road is full of sharp curves and steep embankments. But when the engineer of the pusher that had helped them up the hill saw what was coming he graduated his speed so as to gradually catch the 18 cars section, and finally managed, near Chester, 15 miles from the summit, to let the middle section strike him with the breaking of only the adjoining ends of two empty cars. Then reversing his engine the runaways were stopped by Chester depot. An extraordinary feature was that one of the cars jumped the track and jumped on again without damage.

On the afternoon of the 5th a passenger train on the Germantown Branch of the Philadelphia & Reading road struck a freight car which had been left too near the main track on the end of a siding at Shawmont, Pa. The smoking car had one side torn out and a brakeman and a passenger were slightly hurt by flying splinters.

On the morning of the 6th a freight train on the Pennsylvania Railroad broke in two near Monmouth Junction, N. J., and the rear cars afterward ran into the forward ones, wrecking four cars, and blocking the road for a time.

On the morning of the 8th a freight train on the Delaware Railroad struck a car which had been blown out of a siding at State Road, Del., by a high wind. The engine was slightly damaged.

On the morning of the 9th a freight train on the Troy & Greenfield road ran in upon a siding at North Adams, Mass., and ran into some cars standing there, damaging three of them badly.

On the 10th a freight train on the Hannibal & St. Joseph road ran into the rear of a preceding freight near Harlem, Mo., damaging several cars, and blocking the road two hours.

Very early on the morning of the 13th a freight train on the Pennsylvania Railroad ran into the rear of preceding freight at Loyalhanna, Pa., wrecking several cars, injuring the engineer, and blocking the road five hours.

Early on the morning of the 13th a freight train on the New York, Lake Erie & Western road broke in two near Chester, N. Y., and the rear section afterward ran into the forward one, wrecking several cars and blocking the road four hours.

On the night of the 13th the engine of a coal train on the Central Railroad of New Jersey, which was running ahead of its train to the water tank at Glen Gardner, N. J., ran into the rear of a preceding coal train, which had stopped at the tank. The engine was stopped with but slight damage, but its detached train came up and forced it upon the preceding train, wrecking the caboose.

On the 14th a freight train on the Terre Haute & Indianapolis road ran into some cars which had broken loose from a preceding freight train near Amo, Ind. The engine and several cars were badly broken and the road blocked three hours.

On the 16th a freight train on the Southern Pacific road broke in two near San Jose, Cal., and an extra train ran into the detached cars, doing some damage.

On the evening of the 17th a freight train on the Baltimore & Ohio road ran into the rear of a preceding freight near Union Dam, Md., breaking several cars and blocking the road three hours.

On the night of the 17th a freight train on the East Boston Branch of the Eastern Railroad ran into some cars standing on the track near Revere, Mass., wrecking the engine and several cars badly, blocking the track six hours. The fireman was slightly hurt. A preceding freight train in taking cars from the siding is supposed to have started the remaining cars so that they ran back down grade and over a Tyler safety switch upon the main line.

On the 18th a freight train on the New York & New England road ran over a misplaced switch and into some freight cars standing on a siding at New Britain, Conn. But little damage was done.

On the 18th a passenger train on the St. Louis, Keokuk & Northwestern road ran over a misplaced switch and into some freight cars standing on a siding at Love's, Mo. The engine and several cars were badly damaged.

Early on the morning of the 19th a passenger train on the Grand Rapids & Indiana road ran into the rear of a freight train at Tustin, Mich. The engine and two freight cars were damaged, the caboose wrecked. There was a thick fog at the time.

On the night of the 22d a passenger train on the Chicago & Alton road ran into the rear of a freight train near Sag Bridge, Ill., wrecking one car and injuring two tramps who were stealing a ride.

On the morning of the 24th, as a passenger train on the Atlantic & Great Western road was standing at the depot in Cleveland, O., an engine that was doing some switching backed into the passenger engine, doing some damage to both and blocking the track one hour.

On the 24th a passenger train on the St. Louis, Kansas City & Northern road ran into the rear of a freight which had gone upon a siding, at Centralia, Mo., leaving one car projecting over upon the main track. Nearly all the cars were damaged and a reclining-chair car was badly broken, injuring seven passengers.

On the evening of the 26th a local passenger train on the New York, New Haven & Hartford road ran into the rear of a freight train which had been stopped near Rye, N. Y., by the derailment of a car. The engine and one or two cars were damaged. It does not appear whether any signals were out or not.

On the morning of the 27th a freight train on the Philadelphia & Reading road ran into the rear of a repair train near Douglasville, Pa. The repair-train caboose was wrecked, the conductor and a laborer killed and another man badly hurt. There was a thick fog at the time.

On the morning of the 28th a freight train on the New York, Lake Erie & Western road broke in two near Oxford, N. Y., and the rear section afterward ran into the forward one, wrecking three cars and blocking the road five hours.

On the evening of the 30th an Indianapolis, Cincinnati & La Fayette freight train ran into an Indiana, Bloomington & Western freight in Indianapolis, Ind., wrecking a freight car.

BUTTING COLLISIONS.

On the night of the 1st there was a butting collision between two freight trains at Reelsville, Ind., on the Terre Haute & Indianapolis road, by which both engines and several cars were damaged.

On the morning of the 3d there was a butting collision between a passenger and a freight train on the Connecticut River road at Mt. Tom, Mass. The freight engine was badly damaged.

On the 9th there was a buttiug collision between a passenger and a freight train on the Denver, South Park & Pacific road, on a curve near Kenosha Summit, Col., by which slight damage was done. The accident is said to have been caused by a variation in the conductors' watches.

On the 9th a passenger train on the New York Elevated road ran over a misplaced switch and into the head of a passenger train on the opposite track. Both engines were badly damaged. The accident occurred at the 125th street station in New York.

On the night of the 11th a passenger train on the Pittsburgh, Cincinnati & St. Louis road ran into the head of another passenger train, which was just going into a siding at Urbana, O., where the two trains were to pass. Both engines were badly damaged. A postal clerk jumped from his car and was hurt.

On the afternoon of the 14th a yard engine running down one fork of the Y track near the Union Depot in Cleveland, O., on the Lake Shore & Michigan Southern road, ran into the middle of a freight train which was going up the other fork. The engine and two freight cars were badly broken. The yard engineer, it is said, misunderstood the signals and thought he was to go on.

On the 15th there was a butting collision between a freigh and a construction train on the St. Louis, Iron Mountain & Southern road, near Gurdon, Ark., by which both engines and 11 cars were damaged.

On the 21st there was a butting collision between two freight trains on the Southern Minnesota road near Money Creek, Minn., by which both engines and several cars were badly broken. The accident is said to have been caused by the carelessness of an operator at a station, who failed to deliver an order received for one of the trains.

About 4:30 p. m. on the 24th, on the Mobile & Montgomery road, between McGehee switch and Montgomery, Ala., there was a butting collision between a freight and a gravel train. Both engines were badly wrecked, the gravel train engine having both cylinder heads broken up, the boiler almost destroyed, and the tender a complete wreck. The freight engine was also badly damaged. The section-master and two gravel-train laborers were hurt, but the engineers and firemen escaped by jumping. The collision is supposed t have been caused by a misunderstand of the train-dispatcher's orders.

On the 26th there was a butting collision between two freight trains on the Grand Trunk Railway, near Guelph, Ont., by which both engines and several cars were damaged, and a tramp, who was stealing a ride, was fatally hurt. A car loaded with oil caught fire, and eight cars were burned up.

CROSSING COLLISION.

On the morning of the 24th a passenger train on the Boston & Maine road ran into a freight train on the Eastern road at the Know Nothing crossing at Scarboro, Me. Three freight cars were thrown over and badly damaged, and the Boston & Maine engine was upset and badly broken, injuring the engineer severely. Both roads were blocked four hours. The proper signals were displayed, but a fog prevented their being seen. The Boston & Maine engineer is said to have stopped as usual, and then started on again, taking it for granted that the crossing was clear, although he could not see the signals.

DERAILMENTS, BROKEN RAIL.

On the 15th several cars of a freight train on the Atchison, Topeka & Santa Fe road were thrown from the track near Lakin, Kan., by a broken rail. Several cars were wrecked, and two passengers in the caboose badly hurt.

Very early on the morning of the 21st a freight train on Louisville, New Albany & Chicago road struck a broken rail near Providence, Ind. The engine passed over, but nine cars were thrown from the track and two of them badly broken.

On the morning of the 25th a passenger train on the Delaware, Lackawanna & Western road broke a rail near Wood's Corners, N. Y. The engine passed over, but the baggage car was thrown across the track and badly broken, and several other cars were damaged. The road was blocked three hours.

DERAILMENTS, BROKEN AXLE.

On the morning of the 8th a car in a freight train on the Pittsburgh, Cincinnati & St. Louis road was thrown from the track by a broken axle in the yard in Indianapolis, Ind. A brakesman was thrown down between two cars and killed.

On the evening of the 26th a flat car, loaded with a small locomotive, in a freight train on the New York, Hew Haven & Hartford road, was thrown from the track near Rye, N. Y., by the breaking of an axle, blocking one track for some time.

DERAILMENT, BROKEN TRUCK.

On the 10th a ballast train on the New York & New England road was thrown from the track near Hyde Park, Mass., by the breaking of a truck. Several cars were wrecked and a brakeman hurt.

DERAILMENT, ACCIDENTAL OBSTRUCTION.

On the night of the 12th three cars of a freight train on the Indianapolis & St. Louis road were thrown from the track at Reno, Ind., by a stone which dropped from a flat car on the rails. A brakeman was hurt.

DERAILMENTS, CATTLE.

On the 3d a freight train on the Northern Pacific road ran over some cattle near Clark, Dak., and several cars were thrown from the track, blocking the road some time.

On the evening of the 9th a passenger train on the Ashuelot road struck an ox near Winchester, N. H., and the engine was thrown down a bank and badly broken, the two cars leaving the track, but staying on the bank. The fireman was hurt.

On the night of the 9th a freight train on the Northern Pacific road ran into a herd of cattle near Bismarck, Dak., and several cars were thrown from the track.

On the afternoon of the 10th a passenger train on the Toledo, Peoria & Warsaw road ran into some cattle near Glasford, Ill., and the engine was thrown from the track, blocking the road 3½ hours.

On the night of the 15th a freight train on the Pennsylvania Railroad ran over an ox which had strayed on the track at Torrens, Pa., and the engine was thrown from the track and somewhat damaged.

On the morning of the 17th a passenger train on the St. Louis, Iron Mountain & Southern road ran over some cattle near Knobel, Ark., and the engine and two cars were thrown from the track. The engineer was thrown off and struck a stump, breaking his leg.

On the evening of the 19th a construction train on the Western Counties road was thrown from the track near Bloomfield, N. S., by running over a yoke of oxen. The train was thrown from the track, four flat cars badly broken and the contractor hurt.

On the morning of the 27th a passenger train on the Pittsburgh, Cincinnati & St. Louis road struck a horse which had strayed upon the track and stuck fast in a little bridge near Converse, O. The engine went across the bridge and upset down a bank with three cars after it, the baggage car breaking loose and going down the other side of the embankment. The fireman was badly hurt, but no passenger was injured beyond a few bruises.

On the 29th a passenger train on the Richmond & Danville road ran over a cow in Danville, Va. Two cars were thrown from the track, but, after running some distance they jumped back on the rails again, just before reaching a small bridge.

DERAILMENT, WASH-OUT.

On the 1st a passenger train on on the Chicago, St. Louis & New Orleans road ran into a wash-out near Jackson, Miss., and was wrecked.

DERAILMENTS, MISPLACED SWITCH.

On the morning of the 10th the engine of a local passenger train on the Central Pacific road was thrown from the track by a misplaced switch in Oakland, Cal., blocking the road two hours.

On the night of the 18th a passenger train on the Conway Division of the Eastern Railroad ran off a misplaced switch at Ossipee, N. H., blocking the road three hours.

On the night of the 17th a passenger train on the Metropolitan Branch of the Baltimore & Ohio road was thrown from the track at Silver Springs, D. C., by a misplaced switch. The engine went down a bank and was badly broken, the baggage car and two express cars were piled up together and wrecked. The express messenger was badly injured, a postal clerk and one passenger slightly hurt.

On the 24th a freight train on the Central Pacific road was thrown from the track by a misplaced switch at Brighton, Cal. It had two engines, one being upset into the ditch, and both badly damaged. One engineer was badly scalded.

On the morning of the 24th a passenger train on the Utica, Ithaca & Elmira road was thrown from the track near Horseheads, N. Y., by a misplaced switch. The engine was wrecked, the engineer badly scalded and the fireman also hurt.

On the evening of the 25th five cars of a coal train on the Cincinnati Southern road were thrown from the track near Lexington, Ky., by a misplaced switch, and went down a bank. Three boys, who were stealing a ride, were hurt.

DERAILMENTS WITH MALICIOUS INTENT.

Very early on the morning of the 7th a freight train on the Wabash road ran over a misplaced switch and upon a blind siding near Edwardsville, Ill. The train went through the siding and off the end of it, the engine jumped down into a deep gully and 13 cars were piled up on top of it in a very bad wreck. The engineer and a brakeman were killed, the fireman badly hurt. The switch is believed to have been purposely set wrong.

On the night of the 15th a passenger train on the Chicago, Burlington & Quincy road was thrown from the track near Eubanks, Ill., by a tie which had been fastened to the rails. The engine and baggage car were wrecked and one passenger car left the track. The fireman was killed, the engineer, two postal clerks and three train-men hurt.

On the night of the 29th a freight train on the Georgia Railroad ran into a rail which had been placed across the track, and the engine was thrown from the track and damaged. A negro was afterward arrested on charge of placing the obstruction.

DERAILMENTS, UNEXPLAINED AND MISCELLANEOUS.

On the 3d two cars of a freight train on the New York Central & Hudson River road ran of the track at Waterloo, N. Y., as the train was switching there.

On the afternoon of the 7th a car of a freight train on the Pennsylvania Railroad ran off the track near Waverley, N. J., causing some delay of trains.

On the morning of the 9th six cars of a freight train on the Louisville, Cincinnati & Lexington road ran off the track near Lexington, Ky., doing some damage.

On the 12th a car of a freight train on the Winona & St. Peter road ran off the track at Nicollet, Minn., blocking the road an hour.

On the morning of the 13th three cars of a freight train on the Philadelphia, Wilmington & Baltimore road ran off the track near Perryville, Md. The cars ran across the opposite track, blocking both tracks for two hours.

On the morning of the 15th, as a freight train on the Central Railroad of New Jersey was backing into a siding at Plainfield, N. J., it went too far and a car was thrown over the end of the siding and down a bank into the middle of a street.

On the afternoon of the 15th the engine and five cars of a freight train on the Boston & Albany road ran off the track near Chester, Mass., blocking the road two hours.

Very early on the morning of the 16th the engine and two cars of a freight train on the New York, Lake Erie & Western road ran off the track at Greycourt, N. Y., blocking both tracks for several hours.

On the 20th a freight train on the Indianapolis, Cincinnati & LaFayette road ran off the track near Lawrenceburg Junction, Ind. Six cars were thrown from the track and two of them went into the depot, tearing away one side of it. A brakeman was badly hurt.

On the afternoon of the 21st a freight train on the Pittsburgh, Ft. Wayne & Chicago road ran off the track on a siding at Warsaw, Ind., causing a short delay.

On the evening of the 22d a passenger train on the Chicago & Alton road ran off the track in Chicago, Ill., delaying trains two hours.

On the morning of the 23d a freight train on the St. Paul & Sioux City road ran off the track near Merriam Junction, Minn., blocking the road some time.

On the night of the 25th two cars of a freight train on the Pennsylvania Railroad ran off the track near Nineveh, Pa., causing some delay of trains.

BOILER EXPLOSION.

On the morning of the 27th the boiler of a freight engine on the Baltimore & Ohio road exploded when the train was near Marriottsville, Md. The engine was thrown over by the

force of the explosion; the crown-sheet was torn off, and the grate-bars were found 200 yards away. The fireman was fatally scalded, the engineer was thrown through the cab windows but only slightly hurt. The boiler had been in use several years, but had recently been overhauled and was thought to be perfectly sound. It is said that the steam had fallen very low a short time before, and that the fire was being driven as hard as possible to bring the steam up.

OTHER ACCIDENTS.

On the morning of the 1st, as a passenger train on the Pennsylvania Railroad was near Monmouth Junction, N. J., a parallel rod broke on the engine, one of the ends tearing a hole in the boiler, while the other broke into the cab, injuring the engineer seriously.

On the afternoon of the 3d, as a passenger train on the Central Railroad of Georgia, was near Tomsboro, Ga., the tire broke on one of the driving wheels of the engine and one of the pieces broke through into the cab, bruising the engineer. The engine did not leave the track.

This a total of 78 accidents, whereby 8 persons were killed and 47 injured. Six accidents caused the death of one or more persons each; 22 caused injury but not death, while in 50, or 64.5 per cent. of the whole number, there is no injury noted serious enough for record.

As compared with September, 1878, the number of accidents increased by two, but there is a decrease of 14 in the number killed, and of six in that injured.

These accidents may be classed as to their nature and causes as follows:

COLLISIONS:	
Rear collisions	25
Butting collisions	10
Crossing collision	1
	—36
DERAILMENTS:	
Broken rail	3
Broken axle	2
Broken truck	1
Accidental obstruction	1
Cattle on track	9
Wash-out	1
Misplaced switch	6
Purposely misplaced switch	1
Malicious obstruction	2
Running off end of siding	1
Unexplained	12
	—39
Boiler explosion	1
Broken connecting rod	1
Broken tire not causing derailment	1
Total	78

Seven collisions were caused by trains breaking in two; three by misplaced switches; two by fog; two by carelessness, in leaving cars on a siding projecting over on the main track; one each by a car blown out of a siding, by failure to use signals, and by mistake in orders. Sixteen accidents are traced directly to defect or failure of road or equipment.

The division of accidents and casualties according to classes of trains may be stated as follows:

Accidents:	Collisions.	Derailments.	Other accidents.	Total.
To passenger trains	2	13	2	17
To a passenger and a freight	12	..	..	12
To freight trains	22	26	1	49
Total	36	39	3	78
Casualties:				
Killed by	3	4	1	8
Injured by	19	25	3	47
Total	22	29	4	55

This month the derailments caused the largest number of deaths and injuries. The casualties of the month were very light; there were no very fatal accidents, and many with only one injured.

The usual causes of accident at this season were to some extent absent. Over a large part of the country, the weather last month was unusually dry and free from sudden storms; and, accordingly, there was only one washout and no land slides; no broken bridges, either, which frequently follow sudden freshets. Cattle on track are many, as are common at this season, when more liberty is usually allowed them in farming districts, most of the crops being gathered and home pasture commencing to grow scanty. Carelessly misplaced switches are responsible for six derailments and three collisions—nine accidents in all—enough to be ashamed of, surely, but an improvement on the previous month. The notable feature of the month is the unusual proportion of collisions. Month by month the collisions recorded in these columns will be found to vary not far from one-third of the whole number of accidents; but in September they were nearer one-half than one-third. Perhaps an unusual press of traffic may account for this, more extra trains being in motion on many roads, with some resulting confusion. Three malicious derailments are recorded; two by obstructions on the rails, and one by a misplaced switch.

It may be of some interest to note that 25 accidents took place in the evening, night, or very early morning, that is, in the hours of darkness; 33 happened by daylight, while in 20 cases the time of day is not definitely fixed by our accounts.

For the year ending with September the record is as follows:

	Number of accidents.	Killed.	Injured.
October	61	35	163
November	68	15	54
December	63	16	58
January	113	23	90
February	88	11	75
March	61	14	50
April	50	4	27
May	37	5	20
June	64	18	55
July	81	14	54
August	79	19	59
September	78	8	47
Total	843	182	752
Total, same months, 1877-78	779	200	689

The averages per day for the month were 2.60 accidents, 0.27 killed, and 1.57 injured; for the year they were 2.31 accidents, 0.50 killed, and 2.06 injured. The average casualties per accident were, for the month, 0.103 killed and 0.603 injured; for the year, 0.216 killed, and 0.893 injured. The month was exceptionally light in casualties.

INTERNATIONAL ROAD-MASTERS' ASSOCIATION.

First Annual Convention.

(*Continued from page* 551.)

THE PRESIDENT.—The next question before the meeting is upon switches. I would call upon Mr. W. H. Canniff.

Mr. W. H. CANNIFF.—I hardly know how to address the meeting on this question. On the Lake Shore we are only using, at the present time, the Tyler safety-switch. It is employed on all our main-line switches. My experience only extends as to that switch. I do not know that I could say anything of interest on the subject.

Mr. WISWELL.—What is the most trouble you have with that switch.

Mr. W. H. CANNIFF.—I think the contraction and expansion troubles us the most. They are quite heavy to throw, and require care to keep them up, though I am satisfied in many cases it has saved us severe accidents. Passenger trains have run over the switch, and kept on the track all right.

As to the wear of switches, a great deal depends upon the care taken in keeping them up; however, I am satisfied our opinions in the matter are not of any great account. If we can get at the facts, the statistics, the length of time our switches have been in, the amount of traffic passing over them, and so come to some better conclusion, the Association would receive a substantial benefit.

Mr. ARMSTRONG.—I would like to know the cost of a Tyler switch as compared with the common stub switch?

Mr. W. H. CANNIFF.—That I could not tell you. Some four years ago the price of those switches was $120, but the reduction in price of labor makes it so that I could not say. There is about 20 per cent. off, I think.

Mr. FULLER.—Aside from safety, they are no better than the ordinary stub switch.

Mr. W. H. CANNIFF.—That is all.

Mr. ALSOP.—We are using the split steel-rail switch, and it is becoming the standard on the road. The plate is made so that the shoulder-rail is a perfect rail; the shoulder of the rail sets upon the top of a brace-block, and the base of the point-rail slips in on top of it. We are using the spiral spring, which connects the switch-stand to the switch. It takes up any lost motion there might be in the rods, and keeps the switch perfectly tight. They are perfectly safe for the train to run through if the switch is left wrong.

Mr. PRESTON.—What is the cost of the split-switch now?

Mr. LATIMER.—Fifty dollars.

Mr. WISWELL.—Do you experience any difficulty in keeping them clean from snow and ice?

MR. ALSOP.—Whenever there is any snow and ice, we must keep it clean. It may be blocked with stone or sand also, but we clean it out.

Mr. SULLIVAN.—We are using the split-switch. We tried it first with the double-coil spring on each side. I find a difficulty in brakemen and others adjusting the switch. The snow will blow in between the shoulder-rail and the switch-rail. You could compress the spring and throw it over, but the spring would be adjusted one-half of the way. Yet in the main track you could not do this. We only make it a protection for the side track. We find it much better than to use the coil on both sides.

Mr. ARMSTRONG.—Have you any statistics to show the cost of maintaining a stub-switch, compared with the split-switch?

Mr. SULLIVAN.—We have never removed any of the split-switches. We use a common stub-switch. We have one put in five years ago, and it is good to-day.

Mr. WISWELL.—Have you ever had any accidents on those split-switches?

Mr. SULLIVAN.—Nothing, only from carelessness of our train-men.

THE PRESIDENT.—We would like to hear from Mr. Wiswell.

Mr. WISWELL.—I have never had any experience with the split switch. We use the Wharton, the Tyler and the White switch. We get the best results from the White switch. The stub, or Tyler switch, we never had any trouble with in the winter time; we could throw them with a foot of snow. Light snow never bothered us; but with the Wharton switch we found it necessary to keep a man out nights to avoid accidents on the switch; yet if properly taken care of it is a very good switch. The White switch is a guide-rail switch, and throws up to two stationary points. Those switches clean themselves very well. We took two stub switches out in the North Adams yard a year and a half ago, and put in two White switches, which are as good as when put in. The stub switches had to be renewed every two months. On the main line between stations we are using quite a number of Wharton switches, and they are certainly a very excellent switch for the main line. They are not a good switch to run over at a fast rate of speed on the sidings. I am in favor of the White switch.

Mr. SULLIVAN.—In the Wharton switch you have no spring at all?

Mr. WISWELL.—Only what you get in the rails. It is almost impossible to throw the rail over with any obstruction in it.

Mr. HANOVER.—Our experience on the road with split switches is, that in running out on side tracks they will run frequently through a switch and cause trouble. We put them in on the grade on the up-hill side with a stub switch on the lower end of it.

Mr. MARSHALL.—My experience is that the Lorenz switch, *i. e.*, the split switch, is the best. I have had some experience on the New York Central Railroad; there we have considerable snow and ice in the winter season, and it is almost impossible to keep these switches clear. We have never had any trouble with them only where thrown over a half turn. I think they are safer than any switch I have ever seen.

Mr. LENBOON.—I have used a great many split switches, and they give good satisfaction. We prefer them to the stub switch. We have had trouble with them in the winter time, though.

Mr. ARMSTRONG.—As compared with the cost of the stub switch, what is the relative economy between a stub and split switch, as regards the wear and tear?

Mr. LENBOON.—I think a split switch is 10 per cent. cheaper.

Mr. MINER.—My experience with split switches has been very limited indeed; in fact, I have never been connected with a road where they were perfectly free to use them, but I have dealt with stub switches all my life, and the old-fashioned stub switch is very expensive indeed, although the first cost is very light. As to the so-called "safety switches"—and by the term "safety" we would understand it to mean perfectly safe—I have yet to learn that such a switch as that has been used by any one. Now as to the question of practicability, economy and utility, I think no one can deny that if the stub switch is properly put in, and is handled by efficient, competent and reliable men, it must be a safer switch than any other switch used, because there is nothing complicated about it; there are no springs, bars and fancy work to give way. The stub switches have met with serious objection on account of the expense of maintaining them, and it lies in the battering and bruising and obstruction in the rail at the joint. A stub switch placed on the track with a good joint would last, comparatively speaking, as long or perhaps longer than any other portion of the road. I have had nothing to do personally with a split switch, yet I have studied them some. The stub switch I give the preference to.

Mr. SULLIVAN.—Do you not use the Adams switch?

Mr. MINER.—We have one or two Adams switches which are experimental switches merely. There has never been any accident on them as I know of. The Adams switch is a safety switch, with just one movable rail which acts as the switch or guard rail. A switch that has been before the railroad public for 30 or 32 years, and is not very generally known, is not a practical switch; 99 out of 100 railroad men would say I am an old fogy because I would have the company use the stub switch. Now the sole difficulty with the stub switch is the expensive maintenance of it, and I would ask the question if that difficulty could be removed what objections would there be to a stub switch?

Mr. ARMSTRONG.—The objections are these: It is the most unsafe switch, I know of, for this reason, the rod that connects the target is liable to break. And there have been more accidents upon those stubs than all others combined. We depend entirely, in advocating stub switches, upon a rod of 1¼ inches, for a full support of a rail of 18 to 30 feet, going around a curve of 10 degrees, with nothing to hold it but that rod; whereas if you have a solid rail placed with shoulder braces on the outside of your track and your switch rail fastened to that, you have something that will stand more pressure than a single rail spiked to the track.

Another trouble with the stub switch is, there are too many particulars to look after; the rod is liable to come loose. You change your rod every time you change the base of the rail, and it is a very difficult matter to get those rods adjusted properly and keep them without getting foul. In a climate where the temperature is 10 degrees below zero to 80 degrees above, those rails expand and contract so that the car wheels will drop in. They become loose, while the other switches are solid. My first conviction arose about 14 years ago. I was in charge of a stub switch at the end of a trestle bridge. The men forgot their orders, and in their absence one man turned the switch and left it open. Three men were killed instantly by the accident that was caused. It cost our railroad company that time some $10,000. I requested that a split switch be put in, which was done, and it is there yet; and no accident has ever occurred on it.

Mr. MINER.—In arriving at a fair comparison of accidents that have occurred on switches, we should take into consideration the proportionate number of switches in use of different kinds. If one accident on a stub switch should occur, it is equivalent in number of switches to some 20 or 30 accidents on a split switch, because fewer of them are used. The connection to a stub switch is very light, but the rod that is used or should be used is sufficient to hold a train or engine at any time if the road-master knows his business. Now the switch rod, we know, placed on a switch is good for from 20 to 50 years. It does not require any wonderful mechanic to construct or replace it and it is very inexpensive. Another objection mentioned is the bearing on the rail. That objection should be considered and if it can be removed entirely—you do not speak of any other objection—I would like to know the objection to the stub switch?

Mr. PRESTON.—Is there any danger of the nuts or keys coming off, getting out, and the switch being left entirely loose?

Mr. MINER.—There is not a great objection on account of that; with any switch you are obliged to have your connections; you must have a connection rod, and that connection has to be made by bolt, thread, or key. Now in the stub switch there is but one connecting link or joint between the target stand and the switch proper, and that is the foot of your lever. That does not come into the question of switches at all, that is, in comparing one switch to another, because that has to be with every switch. I have been railroading for 20 years, I have been road-master for 17 years, and I have never yet had the connecting link between the target lever and the switch itself give way, but that does not figure in the difference between the two switches, because I understand it is to be connected with the switch in the same way in the other, and the difficulty is just as liable to occur in one switch as in another. Now, if the joint can be sustained, what objection is there to it?

Mr. ARMSTRONG.—The objection is because it is not safe.

Mr. MINER.—Now, to remove everybody's objection that has had practical experience and knowledge with stub switches, I will say, of course it makes no safety switch at all—in fact, you cannot make it out of any switch—but to prevent the battering and bruising of the iron at the switch joint is very easily done. If you form a continuous rail and bearing for your wheel, you can preserve the joint. The trouble arising in the contraction and expansion in both stub and split switches in my opinion has always been great. I think the stub switch is as free from trouble in that direction as any other switch, but in order to operate a stub switch in winter you have got to have a longer rail than in the summer, or, in other words, if you leave your rails sliding back and forth, you have a bad open joint; if the rod don't do much work, of course it lasts longer. A stub switch that can be opened at the joint not only to remain so in summer, but in winter, and forming a continuous rail preserving the ends of the rail so as to make them last, I would say, is the best switch that has ever been used.

Mr. FULLER.—I move that a new committee of five be appointed to take into consideration the question of switches and report at the next annual meeting. (Carried.)

THE PRESIDENT appointed the following committee, Mr. Harris withdrawing in favor of Mr. Canniff: Mr. Fuller, Mr. Marshall, Mr Burnett, Mr. G. B. Hardy and Mr. William H. Canniff.

Mr. ALSOP.—I would like to hear from those men who have anything new in the way of nut locks.

THE PRESIDENT.—I will call upon Mr. Atwood, of Springfield, Mass., who is here with us. He is the manufacturer of the Atwood safety nut.

Mr. ATWOOD.—I do not know as I can say anything more to you than my cards and papers say. My idea was to make the nut as close as possible to the bolt, and then turn it close, and it holds its place admirably.

Mr. ALSOP.—I would like to hear from these gentlemen here regarding this casting with the rubber inside—the Pratt Washer—those who have used it and like it?

Mr. CANNIFF.—I would say that over the Lake Shore we are using that, and think a great deal of it. There is no difficulty in getting a nut lock that will lock perfectly tight; but the main idea would be, as I understand it, to bind with that lock something elastic, which I think we have in this washer. We have tried the washers, and they have given satisfactory results. I have had very few loose bolts where we are using these washers, and I think the rails show less wear than otherwise. As we often lock a nut perfectly tight, and yet after a little time with the wear and tear of the trains passing over it, we find that bolt loose again, and this, the washer in a measure prevents.

Mr. MARSHALL.—I would like to know if any gentleman here has had any experience with the Harvey grip bolt?

Mr. MINER.—I have had some experience, beginning about a year ago. It is a very good fastener under some circumstances. The bolt is so made, however, that if you once put the nut up, it must always remain, or you will destroy the

purpose for which the bolt was made. The thread is seemingly an ordinary thread, yet when once put up, if it is never started back, it remains tightened, and it is all right But if it has to be used the second time, in my opinion, it would be worthless.

Mr. HYLAND.—We use the Pratt, and it gives good satisfaction, and better than anything else we ever used.

Mr. MINER.—The nut lock presented here by Mr. Atwood I understand has been used by Mr. Hardy and Mr. Fuller. I would like to have them express themselves on it.

Mr. FULLER.—The principle of the nut used by us is very much the same as that, although the shape of it is quite different; as a general thing, we like it.

Mr. HARDY.—The Boston & Albany road is mostly of steel rail, now, and in the early purchases a Pratt nut was purchased, which is somewhat similar to that. Now, we are, on the whole, in favor of the Atwood nut. The Pratt nut has its disadvantages in this respect: It is necessary, in using that nut, to have the wrench fit in the hole, and there was carelessness in one lock so that the fit was not perfect; and rather than take any more chances, we have discontinued the use of them. Last year and this year we have made large purchases of the Atwood nut, and I think most all we have purchased for the last two years have been the square nut, as shown here in this device [pointing to the Atwood papers and models]. It cannot be said that they are always perfect, but when it is properly put up, and the material all right, it is a success; not only for the reason that it keeps its position, which is an important fact, but there is another item in its favor—there is one piece for nut and washer, and the expense is reduced. These we can now buy cheaper than the Pratt nut. The nut has been better tested—that is under better workmanship and supervision—on the locomotives and on the cars, because they took particular pains to have the nut in good shape, and they recommended it very highly in those departments. We use it now on switches and on our rails. It was put on the road in 1875, I think, on new work.

Mr. MINER.—What would be the effect on that nut if the joint was bruised and battered so that there would be an action of the joint or rail, up and down, or have you only seen it on good, smooth rails?

Mr. HARDY.—There has not been an opportunity perhaps to discover that. In the time that nut has been used we find it very satisfactory in all cases. We have very few indeed broken or split in two; the number is not worth mentioning.

Mr. FULLER.—There are several of these subjects not acted upon yet. Would it not be well to have a committee appointed to act upon them? The object is information. There is this question of nuts, which is not decided, another question about elevation of curves, etc.

Mr. HARDY.—I propose that the same committee that prepared these questions for discussion yesterday, Mr. Latimer, Mr. Wiswell and Mr. Fuller, arrange these questions, making the committees, notifying them as early as possible, and have in charge the allotting of this work for the next meeting. (Carried.)

Mr. WISWELL.—Mr. Preston has handed up the following resolution:

"*Resolved*, That a committee of one from each state and Canada be appointed by the President, whose duty it shall be to collect the names of all road-masters in each state and Canada, and correspond with them and obtain all the facts possible that will be of benefit to the Association, and report to the Secretary." (Carried.)

Mr. SHANKS.—I make a motion that we leave the appointing of this committee of one in each state to the Secretary to choose the man to act

No further action taken on this motion.

Mr. ALSOP.—It is hard to decide what is to be paid to the Secretary. He has to hire some one to carry on that correspondence. I think it would perhaps be better to leave that to the Executive Committee to determine what the proper salary should be. I make that motion. (Carried.)

The Committee appointed to prepare a resolution of thanks to Mr. Latimer for his address, presented the following:

"*Resolved, First*, That we tender to Mr. Charles Latimer, Chief Engineer and Head of the Department of Maintenance of Way on the Atlantic & Great Western Railroad, our sincere thanks for the very able and interesting address, with which he has opened the exercises of this convention.

"*Second*, That we regard the suggestions and principles presented as of permanent interest and importance, and worthy of our careful consideration.

"*Third*, That we commend to all our membership attention to the thoughts he has so appropriately emphasized, believing that with that strict observance of the highest standard of integrity and manliness, which so well becomes the trusted Road-Master, this Association may enter upon a work of incalculable success and usefulness.

"Respectfully submitted,

"G. R. HARDY,
"J. W. KENNEDY,
"Committee."

The resolutions were carried unanimously, and it was ordered that a copy be presented to Mr. Latimer.

Mr. LATIMER.—Gentlemen, you have done me a double honor, and I am very grateful for it.

On motion, the thanks of the Convention were also tendered to Chief Engineer Fuller, of the Philadelphia, Wilmington & Baltimore, for his presence and assistance.

On motion, it was ordered that the official report of the proceedings be given to the *Railroad Gazette* and the *Railroader*, they having requested them.

A vote of thanks was passed to all general managers and superintendents who had furnished transportation to road-masters attending the convention.

THE PRESIDENT announced that a meeting of the Executive Committee would be held soon after the adjournment of the meeting.

The Association then adjourned until the next regular meeting, to be held on the second Wednesday in September, 1880, in Chicago.

The Georgia Railroad Law.

The following is the full text of the new railroad law as it finally passed the Georgia Legislature and was approved by the Governor:

A bill to be entitled an act to provide for the regulation of railroad freight and passenger tariffs in this state, to prevent unjust discrimination and extortion in the rates charged for transportation of passengers and freight; and to prohibit railroad companies, corporations and lessees in this state from charging other than just and reasonable rates, and to punish the same, and prescribe a mode of procedure and rules of evidence in relation thereto; and to appoint commissioners, and to prescribe their powers and duties in relation to the same.

Whereas, it is made the duty of the General Assembly, in article 4, paragraph 2, and section 1 of the constitution "to pass laws from time to time to regulate freight and passenger tariffs; to prohibit unjust discriminations on the various railroads of this state, and to prohibit railroads from charging other than just and reasonable rates and enforce the same by adequate penalties, therefore,

Section 1. Be it enacted by the General Assembly of the state of Georgia, That there shall be three commissioners appointed by the Governor, with the advice and consent of the Senate, to carry out the provisions of this act, of whom one shall be of experience in the law and one of experience in railway business. After the expiration of the terms of office of the commissioners first appointed the terms of successors shall be six years; but at the first appointment one commissioner shall be appointed for two years, one for four years, and one for six years. The salary of each commissioner shall be $2,500, to be paid from the treasury of the state. Any commissioner may be suspended from office by order of the Governor, who shall report the fact of such suspension and the reasons therefor to the next General Assembly, and if a majority of each branch of the General Assembly declare that said commissioner shall be removed from office, his term of office shall expire. The Governor shall have the same power to fill vacancies in the office of commissioner as to fill other vacancies; and if for any reason, said commissioners are not appointed during the present session of the General Assembly, the Governor shall appoint them thereafter, and report to the next Senate; but the time until then shall not be counted as part of the term of office of said commissioners, respectively, as herein provided. Said commissioner shall take an oath of office, to be framed by the Governor, and shall not, jointly or severally, or in any way, be the holder of any railroad stock or bonds, or be the agent or employé of any railroad company, or have any interest in any way in any railroad and shall so continue during the term of office; and in case any commissioner becomes disqualified in any way, he shall at once remove the disqualification or resign; and, on failure to do so, he must be suspended from office by the Governor, and dealt with as hereinafter provided. In any case of suspension, the Governor may fill the vacancy until the suspended commissioner is restored or removed.

Sec. 2. That said commissioners shall be furnished with an office, necessary furniture and stationery, and may employ a secretary or a clerk, at a salary of $1,200, at the expense of the state. The office of said commissioners shall be kept at Atlanta, and all sums of money authorized to be paid by this act out of the state treasury shall be paid only on the order of the Governor. Provided, That the total sum to be expended by said commissioners for office rent, furniture and stationery shall, in no case, exceed the sum of five hundred dollars ($500), or so much thereof as may be necessary, per annum.

Sec. 3. That from and after the passage of this act, if any railroad corporation organized or doing business in this state, under any act of incorporation or general law of this state now in force, or which may hereafter be enacted, or any railroad corporation organized, or which may hereafter be organized under the laws of any other state and doing business in this state, shall charge, collect, demand or receive more than a fair and reasonable rate of toll or compensation for transportation of passengers or freight of any description, or for the use and transportation of any railroad car upon its track, or any of the branches thereof, or upon any railroad within this state which it has the right, license or permission to use, operate or control, the same shall be guilty of extortion, and upon conviction thereof, shall be dealt within as hereinafter provided.

Sec. 4. That if any railroad corporation as aforesaid shall make any unjust discrimination in its rates or charges of toll or compensation for the transportation of passengers or freights of any description, or for the use and transportation of any railroad car upon its said road, or upon any of the branches thereof; or upon any railroads connected therewith which it has the right, license or permission to operate, control or use, within this state, the same shall be deemed guilty of having violated the provisions of this act, and upon conviction thereof shall be dealt with as hereinafter provided.

Sec. 5. That the commissioners appointed as hereinbefore provided shall, as provided in the next section of this act, make reasonable and just rates of freight and passenger tariffs, to be observed by all railroad companies doing business in this State on the railroads thereof; shall make reasonable and just rules and regulations, to be observed by all railroad companies doing business in this state, as to charges at any and all points, for necessary hauling and delivering freights; shall make such just and reasonable rules and regulations as may be necessary for preventing unjust discriminations in the transportation of freight and passengers on the railroads in this state; shall make reasonable and just rates of charges for use of railroad cars carrying any and all kinds of freight and passengers on said railroads, no matter by whom owned or carried; and shall make just and reasonable rules and regulations, to be observed by said railroad companies on said railroads, to prevent the giving or paying any rebate or bonus, directly or indirectly, and from misleading or deceiving the public in any manner as to the real rates charged for freight and passengers. Provided, That nothing in this act contained shall be taken as in any manner abridging or controlling the rates for freight charged by any railroad company in this state for carrying freight which comes from or goes beyond the boundaries of the state, and on which freight less than local rates on any railroad carrying the same are charged by such railroad, but said railroad companies shall possess the same power and right to charge such rates for carrying such freights as they possessed before the passage of this act, and said commissioners shall have full power by rules and regulations to designate and fix the difference in rates of freight and passenger transportation, to be allowed for longer and shorter distances on the same railroad, and to ascertain what shall be the limits of longer and shorter distance.

Sec. 6. That the said railroad commissioners are hereby authorized and required to make for each of the railroad corporations doing business in this state, as soon as practicable, a schedule of just and reasonable rates of charges for the transportation of passengers and freights and cars on each of said railroads; and said schedule shall, in suits brought against any such railroad corporations, wherein is involved the charges of any such railroad corporation for the transportation of any passenger or freight or cars, or unjust discrimination in relation thereto, be deemed and taken in all courts of this state as sufficient evidence that the rates therein fixed are just and reasonable rates of charges for the transportation of passengers and freights and cars upon the railroads, and said commissioners shall, from time to time, and often as circumstances may require, change and revise said schedules. When any schedule shall have been made or revised, as aforesaid, it shall be the duty of said commissioners to cause publication thereof to be made for four successive weeks in some public newspaper published in the cities of Atlanta, Augusta, Savannah, Macon, Albany, Columbus and Rome, in this state; and after the same shall be so published, it shall be the duty of all such railroad companies to post, at all their respective stations, in a conspicuous place, a copy of said schedule for the protection of the people. Provided, That the schedules thus prepared shall not be taken as evidence, as herein provided, unless schedules shall have been prepared and published as aforesaid, for all the railroad companies now organized under the laws of this state, or that may be organized at the time of said publication. All such schedules, purporting to be printed and published as aforesaid, shall be received and held in all such suits as *prima facie* the schedules of said commissioner, without further proof than the production of the schedules desired to be used as evidence, with a certificate of the railroad commission that the same is a true copy of the schedule prepared by them for the railroad company or corporation therein named, and that the same has been duly published as required by law, stating the name of the paper in which the same was published, together with the date and place of said publication.

Sec. 7. That it shall be the duty of said commissioners to investigate the books and papers of all the railroad companies doing business in this state, to ascertain if the rules and regulations aforesaid have been complied with, and to make personal visitation of railroad offices, stations, and other places of business, for the purpose of examination, and to make rules and regulations concerning such examinations, which rules and regulations shall be observed and obeyed as the other rules and regulations aforesaid; said commissioners shall also have full power and authority to examine all agents and employés of said railroad companies and other persons, under oath or otherwise, in order to procure the necessary information, to make just and reasonable rates of freight and passenger tariffs, and to ascertain if such rules and regulations are observed or violated, and to make necessary and proper rules and regulations concerning such examination, and which rules and regulations herein provided for shall be obeyed and enforced as all other rules and regulations provided for in this act.

Sec. 8. That all contracts and agreements between railroad companies doing business in this state as to rates of freight and passenger tariffs, shall be submitted to said commissioners for inspection and correction, that it may be seen whether or not they are a violation of law or of the provisions of the constitution, or of this act, or of the rules and regulations of said commissioners, and all arrangements and agreements whatever as to the division of earnings of any kind by competing railroad companies doing business in this state shall be submitted to said commissioners for inspection and approval, in so far as they affect rules and regulations made by said commissioners, to secure to all persons doing business with said companies just and reasonable rates of freight and passenger tariffs, and said commissioners may make such rules and regulations as to such contracts and agreements as may be then deemed necessary and proper, and any such agreements not approved by such commissioners, or by virtue of which rates shall be charged exceeding the rates fixed for freight and passengers, shall be deemed, held and taken to be violations of article 4, section 1, paragraph 4 of the constitution, and shall be illegal and void.

Sec. 9. That if any railroad company doing business in this state, by its agents or employés, shall be guilty of a violation of the rules and regulations provided and prescribed by said commissioners, and if, after due notice of such violation given to the principal officer thereof, ample and full recompense for the wrong or injury done thereby to any person or corporation, as may be directed by said commissioners, shall not be made within thirty days from the time of such notice, such company shall incur a penalty for each offense in the sum of not less than one thousand dollars, nor more than five thousand dollars, to be fixed by the judge presiding. An action for the recovery of such penalty shall lie in any county in this state where such violation has occurred, or wrong has been perpetrated, and shall be in the name of the state of Georgia. The commissioners shall institute such action through the Attorney-General or Solicitor-General, whose fees shall be the same as now provided by law.

Sec. 10. That if any railroad company doing business in this state shall, in the violation of any rule or regulation provided by the commissioners aforesaid inflict any wrong or injury on any person, such person shall have a right of action and recovery for such wrong or injury in the county where the same was done in any court having jurisdiction thereof, and the damage to be recovered shall be the same as in actions between individuals, except that in cases of willful violation of law, such railroad companies shall be liable to exemplary damages. Provided, That all suits under this act shall be brought within twelve months after the commission of the alleged wrong or injury.

Sec. 11. That in all cases under the provisions of this act, the rules of evidence shall be the same as in civil actions, except as hereinbefore otherwise provided, all fines recovered under the provisions of this act shall be paid into the state treasury, to be used for such purposes as the general assembly may provide. The remedies hereby given to the person injured shall be regarded as cumulative to the remedies now given by law against railroad corporations, and this act shall not be construed as repealing any statute giving such remedies.

Sec. 12. That the terms "railroad corporation," or "railroad company," contained in this act shall be deemed and taken to mean all corporations, companies or individuals now owning or operating, or which may hereafter own or operate any railroad, in whole or in part in this state, and the provisions of this act shall apply to all persons, firms and companies, and to all associations of persons, whether incorporated or otherwise, that shall do business as common carriers upon any of the lines of railroad in this state (street railways excepted) the same as to railroad corporations hereinbefore mentioned.

Sec. 13. That all railroad companies in this state, shall, on demand, issue duplicate freight receipts to shippers, in which shall be stated the class or classes of freight shipped, the freight charges over the road giving the receipts, and so far as practicable, shall state the freight charges over other roads that carry such freight. When the consignee presents the railroad receipt to the agent of the railroad that delivers such freight, such agent shall deliver the article shippped on payment of the rate charged for the class of freights mentioned in the receipt. If any railroad company shall violate this provision of the statute, such railroad company shall incur a penalty to be fixed and collected as provided in section nine of this act.

Sec. 14. That it shall be the duty of the commissioners herein provided for to make to the Governor semi-annual reports of the transactions of their office, and to recommend from time to time such legislation as they may deem advisable under the provisions of this act.

Sec. 15. That said railroad commissioners in making any examination for the purpose of obtaining information pursuant to this act, shall have power to issue subpœnas for the attendance of witnesses by such rules as they may prescribe, and said witness shall receive for such attendance two dollars per day and five cents per mile traveled by the nearest practicable route, in going to and returning from the place of sitting of said commissioners, to be ordered paid by the Governor upon presentation of subpœnas sworn to by the witnesses as to the number of days served and miles travelled, before the clerk of the said commissioners, who is hereby authorized to administer oaths. In case any person shall wilfully fail or refuse to obey such subpœna, it shall be the duty of the judge of the Superior Court of any county, upon application of said commissioners, to issue an attachment for such witness and compel him to attend before the commissioners and give his testimony upon

such matters as shall be lawfully required by such commissioners, and said court shall have power to punish for contempt, as in other cases of refusal to obey the process and order of such court.

Sec. 16. That every officer, agent or employé of any railroad company who shall wilfully neglect or refuse to make and furnish any report required by the commissioner as necessary to the purposes of this act, or who shall wilfully and unlawfully hinder, delay or obstruct said commissioners in the discharge of the duties hereby imposed upon them, shall forfeit and pay a sum of not less than one hundred, nor more than five thousand dollars, for each offense, to be recovered in an action of debt in the name of the state.

Sec. 17. That all laws militating against this act are hereby repealed.

The Pacific Railroad Sinking Fund Law.

The following summary of opinions delivered in the United States Supreme Court, Oct. 20, is telegraphed from Washington:

No. 1,083 of 1878.—The Union Pacific Railroad Company, appellant, against the United States—appeal from the Court of Claims—and No. 972 of 1878.—The Central Pacific Railroad Company and others, appellants, against Albert Gallatin; appeal from the Circuit Court of the United States for the District of California.—These cases, both of which involve the constitutionality of the Pacific Railroad act of May 7, 1878, known as the Thurman act, were decided, and the decisions announced on the last Monday of the last term; but owing to a great pressure of business, neither the majority of the Court nor the Justices who dissented were able to prepare written opinions in time to be delivered when the decisions were rendered. Opinions have since, however, been prepared, and were delivered this afternoon. Chief-Justice Waite read the opinion of the majority of the Court, sustaining the constitutionality of the act in question, and dissenting opinions were delivered by Associate Justices Bradley, Strong, and Field. The opinion of the Chief-Justice, which deals especially with the case of the Union Pacific, is, in substance, as follows: The precise point to be determined, in the opinion of the Court, is, "Whether a statute which requires the company in the management of its affairs to set aside a portion of its income as a sinking fund to meet the subsidy bonds and other mortgage debts when they mature deprives the company of its property without due process of law, or in any other way improperly interferes with vested rights." The Court holds that the railroad company is subject to legislative control, so far as its business affects the public interests; that by the reservation contained in the chartering acts of 1862 and 1864, Congress retains full power to make such alterations and amendments of the charter as come within the just scope of legislative power. In so doing, it cannot undo what has already been done, nor unmake contracts which have already been made; but it may provide for what shall be done in the future, and may direct what preparation shall be made for the due performance of contracts already entered into. In less than 20 years from the present time, there will become due from the Union Pacific Company about $80,000,000, secured by first and subsidy mortgages, besides the capital stock, representing $36,000,000 more. With the exception of the land grant, little, if anything, except the earnings of the company can be depended on to meet these obligations when they mature. These earnings the company, after paying the interest on its own bonds, has been dividing from time to time among its stockholders, without laying by anything to meet the enormous debt which is so soon to become due. Thus the stockholders of the present time are receiving in the shape of dividends that which those of the future may be compelled to lose. The United States occupy toward this corporation a two-fold relation—that of sovereign and that of creditor. In their relation of sovereign it is their duty to see to it that the current stockholders do not appropriate to their own use that which in equity belongs to others. A legislative regulation which does no more than require them to submit to their just contribution toward the payment of a bonded debt, cannot in any sense be said to deprive them of their property without due process of law. The Court holds, therefore, that the legislation complained of may be sustained as a reasonable regulation of the affairs of the corporation, and co-promotive of the interests of the public and the corporators. It is also warranted under the authority, by way of amendment, to change or modify the rights, privileges and immunities granted by the charter. The judgment of the lower court is affirmed.

From this decision, Justices Strong, Bradley and Field dissent in long and carefully-prepared opinions. Justice Strong maintains that the Thurman act is a plain transgression of legislative power; that the government, in its contract with the railroad companies, laid aside its sovereignty, and that the contract is no part of the charter of the Union Pacific Company or of the acts of 1862 and 1864. It was a subsequent transaction, and the United States became a party to it, not in its sovereign character, but as a civil corporation, with the same rights and obligations as a private person, and no more. But what does the act of May 7, 1878, attempt to do? It does not purport to be a repeal of the charter. All its provisions have in view the imposition of additional obligations upon the railroad companies. Its leading purpose is to take control of the property of the debtor and sequester it for the security of a debt, which, by the terms of the contract, is not due and payable for years to come. To claim such a power is to claim the right to disregard the contract entirely and substitute for it a different one without the consent of the debtor. If the United States can exact now one-quarter of the net earnings of each of these companies, and place it in their treasury, they can, by the same power and with the same reason, exact the whole of the earnings or any other property equal to the amount of the debt. Such legislative power as this is not only not conferred by the constitution, but in effect is expressly denied in those clauses of the fifth amendment, which provide that no person shall be deprived of life, liberty, or property without due process of law, and that private property shall not be taken for public use without just compensation. Furthermore, it may well be doubted whether the act of 1878 is even an attempted exercise of legislative power. A statute undertaking to take the property of A and tranfer it to B is not legislation. It would not be a law. It would be a decree or sentence, the right to declare which, if it exists at all, is in the Judicial Department of the government. Congress would in such case be trying to perform the functions of a court. By the act under consideration, the creditor becomes the custodian of the debtor's property, and acquires a right to hold and manage it as if it were his own. It is absurd to say that this is not practically a radical change in the relations between the parties established by the contract, and it is equally impossible to maintain that it is not depriving the debtors of their property without due process of law. Justice Strong concludes, therefore, that the act of 1878 is not only unauthorized by any power existing in Congress, but is an infraction of the prohibition contained in the fifth amendment of the constitution.

The dissenting opinion of Justice Field begins as follows: "I also dissent from the judgment of the court in these cases. The doctrines announced will, in my opinion, create great insecurity in the title to corporate property in the country. With many assertions to the contrary, they in effect declare that the general government is under no legal obligation to fulfill its contracts, and whether it shall do so in any case or not, is a question of policy, and not of duty. They also recognize its right to appropriate, by legislative decree, the earnings of a corporation with which it deals, without judicial inquiry and determination as to its claim to such earnings, thus sanctioning the exercise of judicial functions in its own cases; and, finally, they assert a supremacy of the Federal over the state government in the control of the corporations of the latter, utterly subversive of the rights of the state." After reciting the facts of the organization of the Central Pacific Railroad Company as a corporation of the state of California, the reservations of power made by the state in the company's charter, the construction of the road and its full compliance in all respects with its engagements, and the passage of the Thurman act requiring the establishment of a sinking fund, Justice Field continues: "It is not material, in the view I take of the subject, whether the deposit in the treasury of the creditor of this large sum be termed a payment, or by jugglery of words be called something else. It is the exaction from the company of money belonging to it for which the original contract did not stipulate that constitutes its objectionable feature. The act of 1878 makes a complete change in the rights and liabilities of the company. Its purpose, however disguised by specious pretexts, is to coerce by legislative decree the payment of moneys years in advance of the time prescribed by the original contract. That it is as unconstitutional in its character as it is unjust in its operation I have no doubt whatever, and I have yet to hear any reasons which seem to me even plausible for its maintenance. * * * I do not understand or appreciate that doctrine which would ascribe to the Federal government a sovereign right to treat as it may choose corporations with which it deals, and would exempt it from that great law of morality which should bind all governments, as it binds all individuals, to do justice and keep faith." With regard to the invasion of the law upon the rights of the state of California, Justice Field concludes as follows: "The Central Pacific Railroad Company is a state corporation, and in creating it the state reserved the same control over it which it possesses over other railroad and telegraph companies created by it. It undertakes to control and manage it in all particulars required for the public service, and can there be any doubt in the mind of any one who has the least respect for the reserved rights of the state, that over its own creations the state has supreme authority? I confess that I am utterly at a loss to find where authority on the part of the United States to interfere with the state in this respect and to take such control from it is to be found, except in the theories of those who regard the general government as the all-controlling power of the nation, to which states, even in local matters, must bend. I cannot assent to any such theories. The government created by the constitution left to the states the control of local matters, and it never entered into the conception of its framers that under it the creations of the states could be taken by it from their control, and they left powerless and helpless in the matter. The doctrines announced in the opinion of the majority of the court go further than any heretofore advanced, and any even thought possible in the history of the country, to destroy the independence of the states and establish their helplessness, even in matters of local concern, as against the will of Congress. He must be dull, indeed, who does not see that, under the legislation and the course of decision of late years, our government is fast drifting from its ancient moorings—from the system established by our fathers into a vast centralized and consolidated government."

The New York Legislative Investigation of Railroad Practices.

Thursday, Oct. 16, there was some further examination of Mr. Benjamin Brewster, a director of the New York Elevated Company, which brought out few facts.

Mr. J. A. Bostwick, of the Standard Oil Company, said he had been in the oil business 10 or 12 years. He leased the Weehawken oil docks from the Erie Railway in 1869 or 1870, when Jay Gould was President, for $75,000 a year, and had them three years. He had all the revenue from handling the oil, the charge at the time being 30 cents a barrel, and practically all the oil business of the Erie passed through his hands as warehouseman. He was then a large shipper and receiver of oil. He refused to say what rates he paid then or since, giving a reason that he was under indictment in Pennsylvania for conspiracy with the Erie and the New York Central and others to force the Pennsylvania to accept certain rates, and that his testimony before the committee might be used against him. Recently he had shipped most of his oil by the New York Central. The oil docks at Sixty-fifth street on that road were owned by himself and others, and other oil men do not ship by that road, because the railroad has no tanks for receiving oil. He succeeded Lombard, Ayres & Co. in the possession of the oil-cars, tanks, etc., and others have to ship in barrels and pass it over tracks leased by him. The New York Central receives crude oil from the pipe line of the American Transfer Co., at Salamanca. That line is not owned by the Standard Oil Co., but mainly by persons connected with that company. Being asked how it was that the contract for his oil yards was made with the Standard Oil Co., Mr. Bostwick, said that he worked in harmony with that company, and did many things in coöperation with it.

Chairman Hepburn said he had the opinion from the evidence, that the Standard Oil Company consists of a community of interest or harmony between different firms holding stock in the Standard Oil Company and the Standard in them, and he asked Mr. Bostwick if this opinion was correct, but Mr. Bostwick only said that they were in harmony, and if they met any one in competition with them they bought him out or made some arrangement with him.

The Chairman said: "We have evidence that the New York Central and Erie, with their terminal facilities, are controlled absolutely by the Standard Oil Company; it seems to me there ought to be, and must be, some way whereby the people of the state of New York can exercise control over a route that passes through the state."

Mr. Bostwick refused to give the names of the firms affiliated with the Standard Oil Co., but he thought that they had 90 to 95 per cent. of the entire oil business. "If one man, A, has 90 per cent." added the witness, "he has got the best of the stick, and can make his own terms with the railroads. He can go to New York Central or the Erie and say: 'I have got the business you want; will you carry my goods under a fair arrangement?' They say at first, 'No, we don't want your business.' In six months they find themselves without any business at all, and they say, 'We have made a mistake in refusing that man's offer, and in treating him so.' Then the four lines think better of it, and they agree to take the business for 80 if they can't get 90. They find it is all nonsense fighting. A then says, 'I have not so much business, and if you agree to make the uniform rate at $1, I will guarantee you all a share in it.'"

He thought the railroads had been getting remunerative rates for carrying the oil during the past four years. He refused to answer many questions as to who was or was not connected with the Standard Company, and as to its business, though directed to answer by the committee. He did not think any of the officers of the railroads were financially connected with that company.

Gen. Alex. S. Diven, who was connected with the Erie Railway as early as 1846 or 1847, was once Superintendent of Construction, and when Dix was President became Vice-President, said that the road was not materially improved during the Gould administration—not more than would be represented by a million dollars; not enough to represent the increase of stock. He thought it would be proper for the state to exercise some control over the railroads and do away with discriminations. It would be just to make a difference between a package and a car-load, and between a car-load and a full train. When Bostwick had the Weehawken docks other oil shippers complained that they could not compete with him and threatened not to ship over the road so long as he had the docks. He was finally got rid of. He thought it a great outrage to charge more for through than for local fares. He had made special rates himself when he was Vice-President, and was forced to do so by the action of competing lines.

Mr. H. H. Rogers, of Charles Pratt & Co., was recalled to testify concerning the Standard Oil Co., but afterward excused on his promise to endeavor to give or obtain answers to a series of written questions to be submitted to him. If he did not answer he would state the reason why.

Friday morning Wm. T. Scheide, a dealer in crude petroleum since 1868, testified that he once did a large business. He was a member of a committee of producers and New York refiners who asked the railroads to abrogate their contract with the South Improvement Co. The result was an agreement signed March 28, 1872, by which the railroads agreed to maintain existing rates and make no discriminations, while the producers agreed among themselves not to sell any crude oil at any price either to the South Improvement Co. or the Standard Oil Co. The effect of this would have been to destroy all the refineries at Pittsburgh and Cleveland—about 55 per cent. of the whole. Its practical effect was to reduce the proportion of oil shipped by the two New York roads from 45 to 18 per cent. of the whole. The agreement was abandoned by the Producers' Union in April, 1872. One member sold 15,000 bbls. to the Standard, contrary to the agreement, and a meeting was then held at which liberty was given to all to sell to that company. They thought they had effected their object by stopping the railroad discriminations. He has had nothing to complain of against the railroads of the Standard Oil Co. He sold his business to Charles Pratt & Co.; in 1875, but not because of any discriminations against him. Before 1873 he shipped by the Pennsylvania, making long contracts ahead and getting certain rates and facilities. Afterward the Pennsylvania resolved to treat all shippers alike, and he could not always get cars in the busy season. Therefore he went to the Erie. He built tanks at the transfer to that road and provided tank cars, and received a rebate therefor. Henry Harley, formerly oil agent of the Erie, had a lower oil rate to New York than any one else, and he could not ship by the Erie while he was agent.

At this point the railroads began the introduction of testimony in their defense, beginning with Mr. George R. Blanchard, Assistant to the President of the New York, Lake Erie & Western Railroad, who, in answer to a question as to his experience, recounted the positions he had held on railroads, beginning at the age of 17 as a clerk in the general offices of the Cincinnati & Indiana Railroad at Cincinnati; then as station agent, chief clerk of freight office, General Freight Agent of the Ohio & Mississippi, of the Central Ohio and the Baltimore & Ohio, and then of the Erie, of which he was afterward Second Vice-President in charge of both freight and passenger traffic, which duties he continues to fulfill in his present position in the reorganized company.

Mr. Blanchard's testimony was largely supported by statistics and documents, and contained a vast amount of information as to the course of rates, the progress of industry and commerce along the line of the Erie and in the city of New York, the policy of the road in making rates, the course of freight rates in the state of New York, etc. To be able to give the substance of his testimony with accuracy, requires the official report, which will probably be in print in time to enable us to use it next week.

A table of average rates was submitted by Mr. Harlan A. Pierce, as mentioned last week. According to the figures contained therein, the through rates from Chicago to Liverpool on 100 lbs. wheat were as follows: By steamers from New York the average for 1878 was 52$\frac{7}{32}$ cents; by way of Philadelphia, 49$\frac{1}{16}$ cents; by way of Baltimore, 49$\frac{5}{8}$ cents; by way of Boston, 49$\frac{1}{8}$ cents. Rail freights from Chicago to New York were 29$\frac{3}{8}$ cents; to Philadelphia, 27$\frac{3}{8}$ cents; to Baltimore, 26$\frac{3}{4}$ cents; to Boston, 34$\frac{3}{4}$ cents. Ocean steam freights to Liverpool from New York were 25$\frac{1}{4}$ cents; from Philadelphia, 28$\frac{1}{4}$ cents; from Baltimore, 28$\frac{3}{4}$ cents; from Boston, 24$\frac{1}{2}$ cents. Ocean sail to Cork for orders from New York was 29$\frac{1}{4}$ cents; from Philadelphia, 28$\frac{1}{4}$ cents; from Baltimore, 28$\frac{1}{4}$ cents; from Boston, 27$\frac{1}{4}$ cents. Port charges for 100 lbs. of grain in New York amounted to 7$\frac{5}{8}$ cents; in Philadelphia, 6$\frac{1}{4}$ cents; in Baltimore, 8 cents; in Boston, 5$\frac{3}{8}$ cents.

On Wednesday, Oct. 22, the examination of Mr. Blanchard was continued, the points on which he was questioned relating to through rates to European ports, and the controversies arising between the railroads and the steamship lines. He referred also to the facilities given the steamers at New York as compared with those at other ports.

Mr. Blanchard next referred to the troubles of the other trunk lines with the Baltimore & Ohio and their final settlement. He also presented several statistical tables, showing the relative cost of working on the four trunk lines. His examination was to be continued on Oct. 23.

A Tender-Hearted Conductor.

The night was wild and stormy, the train was far behind time, and was a heavy freight train, with a caboose attached, and in a dark place in the car, hidden as much as possible from observation, sat a little girl crying, as the train rolled out of a teeming city. The writer of this observed her, and, sitting down in the seat with her, inquired the cause of her trouble. She said her brother was to have met her at the depot, but the train had just been changed to run out from a different depot from that of former times, and he had missed her thus. Said she: "The train passes right by our house, but goes almost two miles before it stops." If it were only a wagon, so that it could stop and let her off. She did not know how she should ever get home through the darkness and storm. We went forward and told her story to the conductor.

"I know how she can get home," said he; and inquiring out the position of the house, stopped the heavy train. He then helped the little girl out, across the ditch, upon good footing, and left her within a few rods of her home, with a kind word, as if she were queen of a realm.

These are little things, but they preserve one's faith in humanity, and reassure us of that "touch of nature" that makes "the whole world kin."—*Moline (Ill.) Dispatch.*

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CONTENTS.

EDITORIAL ANNOUNCEMENTS.

Passes.—*All persons connected with this paper are forbidden to ask for passes under any circumstances, and we will be thankful to have any act of the kind reported to this office.*

Addresses.—*Business letters should be addressed and drafts made payable to* THE RAILROAD GAZETTE. *Communications for the attention of the Editors should be addressed* EDITOR RAILROAD GAZETTE.

Advertisements.—*We wish it distinctly understood that we will entertain no proposition to publish anything in this journal for pay,* EXCEPT IN THE ADVERTISING COLUMNS. *We give in our editorial columns* OUR OWN *opinions, and those only, and in our news columns present only such matter as we consider interesting and important to our readers. Those who wish to recommend their inventions, machinery, supplies, financial schemes, etc., to our readers can do so fully in our advertising columns, but it is useless to ask us to recommend them editorially, either for money or in consideration of advertising patronage.*

Contributions.—*Subscribers and others will materially assist us in making our news accurate and complete if they will send us early information of events which take place under their observation, such as changes in railroad officers, organizations and changes of companies, the letting, progress and completion of contracts for new works or important improvements of old ones, experiments in the construction of roads and machinery and in their management, particulars as to the business of railroads, and suggestions as to its improvement. Discussions of subjects pertaining to* ALL DEPARTMENTS *of railroad business by men practically acquainted with them are especially desired. Officers will oblige us by forwarding early copies of notices of meetings, elections, appointments, and especially annual reports, some notice of all of which will be published.*

TRAIN BRAKES.

A few years ago, the question of the relative merits of continuous brakes was the subject of a great deal of animated discussion on nearly all railroads in this country. At that time a number of trials were made, with rival systems of brakes, and public attention was thus drawn to the subject. When, however, the patents of Smith's vacuum brake were bought up by the Westinghouse Company, the rivalry to a great extent subsided, and with it, apparently, the public interest in the subject. While it is probable that a dispute carried on by two competing inventors may not be the most favorable condition of things for evolving the exact truth, yet, in this case, it served the useful purpose of attracting public attention to the subject. It is, of course, desirable that passenger railroad trains, especially those which which run at high rates of speed, should be equipped with the *best* continuous brakes, yet it is of much more importance that they should be supplied with *good* continuous brakes, even though not the best, rather than with none at all. The danger is, now, that the attention of railroad men will not be drawn to this subject sufficiently, and that it will require more such accidents similar to that at Jackson, Mich., to lead some of them to give attention to the subject. It may be assumed as absolutely certain that on any railroad doing a considerable traffic there is always danger that a train may get into a position in which, unless its speed can be arrested quickly, a serious accident will happen, attended with more or less loss of life. Now if this danger does exist, and if, as is true, it is impossible to eliminate it entirely, it certainly becomes the duty of railroad managers to provide the means, as far as possible, of averting it, and preventing the slaughter of innocent passengers.

Many cases might be cited in which accidents did occur, with fearful loss of life, when, in all human probability, if the engineers had had a good continuous brake they could have been prevented. An equal or greater number could be referred to where accidents were prevented by the use of the atmospheric brakes, whereas without them loss of life was inevitable. Take the following case, which occurred on the New Haven road a few years ago: "The engineer saw a a team on the the track. He immediately applied the air brakes, reversed the engine, and stopped the train within six or eight feet of the team. It was found that in crossing the track one of the horses, which were attached to a heavy farm wagon, had stumbled and fallen, and that the driver had been unable to release the horse from the harness so that he could get up."

It would be a waste of time and space to increase the list of such causes of danger. It is not in Connecticut alone that horses stumble and fall, or that men blunder, or that the floods come or fire consumes. In the whole wide expanse reached by railroads it appears as though some impenetrable fate stood waiting always in various guises to endanger precious lives. It is of course impossible to eliminate all danger from railroad travel, and with the best appliances that human ingenuity and skill can devise, death and destruction will still lurk along every railroad track. But there are *some dangers* which efficient brakes *will* avert, and the railroad manager who refuses to use them incurs a fearful responsibility if he does not provide such safeguards.

Engineering of Feb. 27, 1874, had the following forcible remarks on this subject:

"It is beyond question that the majority of the scandalous accidents which have been so rife of late might have been either avoided entirely, or rendered far less dangerous, by the use of an efficient continuous brake. The feeling of confidence such a brake creates in the men is to be reckoned among its advantages, and we are sure that every one, including railway directors, would prefer to trust themselves in the hands of a driver who possessed the means of instantaneously checking the speed of a train, and bringing it to a stand, almost before the ordinary brakes could be put in operation. In the event of a collision being imminent, the engine-driver would not stop to enjoy his feeling of confidence; he would instinctively apply the brake, provided he could do so instantaneously, and without an exertion of the presence of mind necessary to operate the ordinary means for stopping the train. The railway companies cannot urge that we have no efficient continuous brake."

This was written soon after a series of accidents had occurred in England. Can companies here whose trains are not equipped with efficient brakes afford to wait until they are reminded of their duty by similar "scandalous accidents?"

Attention was called last week to the fact that at the recent horror at Jackson the point at which the track was obstructed by the switching engine was visible at a distance of 1,828 feet east of it. In the verdict of the coroner's jury, which has been published since the article containing the statement referred to was written, it is said that "the jury think it is quite probable that the engineer of the Pacific express saw the white light on the east switch, which indicated a clear track, just before the red light was displayed, and that he did not see the latter until too late to avoid the collision." But when was it too late to avoid the collision? Was it when the express train was within 1,500, 1,000, 750, 500, 400 or 300 ft. of the obstruction? Did the engineer of the wrecked train see the obstruction at any time before he struck it, and if so, at what distance was he from it, and could he, with the most efficient brakes in use, have stopped his train or checked its speed sufficiently to avoid serious damage? The answers to these questions are buried in hopeless oblivion in the graves of the engineer and fireman, who are the only two men who could have answered them.

But the question, at what distance from the obstruction the engineer could have prevented the accident with efficient brakes can be answered. In order to throw some light on this, we have compiled from a number of public trials of brakes a brief report of the results. As these have not, to our knowledge, been collected together in any one article, they will be of interest to many readers, and of value in answering the question above.

On Nov. 26, 1869, experiments were made on the Chicago & Northwestern Railway. A train equipped with the old Westinghouse atmospheric brake, running at a speed of 32 miles per hour, was stopped in 19 seconds and in a distance of about 385 feet. The same train, at a speed of nearly 40 miles per hour was brought to a stand-still in 18 seconds and a distance of about 370 feet. These trials were made on a slippery track.

On May 12, 1871, on the Kansas Pacific Railway, a train running at 45 miles per hour, and equipped with the same brake, was stopped in 250 feet. Size of train not given.

On Sept. 18, 1869, a train of cars running down a grade of 96 feet per mile on the "Horseshoe Bend" on the Pennsylvania Railroad, was brought to a stand-still in eleven seconds and 420 feet, with the old Westinghouse brake.

On the same road an express train at a speed of 45 miles an hour was suddenly flagged and stopped in nine car-lengths—about 495 feet—just 80 feet from a train standing on the track.

On the Pittsburgh, Cincinnati & St. Louis Railway, a train coming around a curve down a grade of 58 ft. at the rate of 25 miles per hour was brought to rest in a distance of 200 ft., and within 50 ft. of a freight train obstructed by the caving in of a tunnel.

On April 9, 1873, a trial was made with the Westinghouse automatic brake on the East Boston Branch of the Eastern Railroad near Revere. The train consisted of eight eight-wheeled passenger cars, weighing 128 tons, and an American locomotive, which, with its tender, weighed 55 tons.

At 30 miles per hour this train was stopped in 15 seconds in a distance of 468 ft. At a speed of 34 miles per hour the train was stopped in 15 seconds and 430 ft., these figures being each an average of two trials.

On the 17th and 18th of April, 1873, a series of trials was made with the Smith vacuum brake on the Central Railroad of New Jersey. The train consisted of a 35-ton passenger engine and six ordinary 19-ton passenger cars. The track on which these trials were made was in good condition, perfectly straight, and with low grades. The following were some of the results attained:

Speed in miles per hour.	Time in which train was stopped, seconds.	Distance in which train was stopped, feet.	
25	20	320	1 trial.
30	16.4	520.7	Average of 7 "
35	14.9	509	" 5 "
40	18.5	640	" 1 "
45	18.5	700	" 1 "

A test was also made with this same train, which was allowed to "run free," that is, without applying any brakes, at a speed of 33⅓ miles per hour up a grade of 5 feet per mile. It ran 5,550 ft., or over a mile, before coming to a state of rest.

On July 15, 1874, experiments were made with the vacuum brake on the Toledo, Wabash & Western Railway with an engine and train of ten cars. At a speed of 35 to 40 miles per hour on a level track the train was stopped in 36 seconds and a distance of 1,365 ft. The same train at the same speeds was stopped with the hand-brakes applied by five brakemen in 30 seconds and a distance of 975 ft.

On July 22, 1874, experiments were made with the Westinghouse automatic brake on the Chicago & Alton Railroad with a train of ten cars. On a down grade and at a speed of 35 miles per hour it was stopped in 17¾ seconds and in 513 feet.

In January, 1875, Mr. Loughridge made some experiments to determine in what distance a single car could be stopped at a high speed with his brake in comparison with the old system where the hand brakes are used. At a speed of 48 miles per hour the car was stopped with the hand brakes in a distance of 1,255 ft., while with his brake it was brought to rest in 550 ft.

On April 30, 1876, a trial was made on the Washington Branch of the Baltimore & Ohio Railroad with the same brake. A train consisting of a locomotive and ten cars, running at a speed of 42.6 miles per hour, was stopped in 16 seconds, in a distance of 589.66 ft.

On the 22d of December, 1876, a series of experiments was made with the Smith vacuum and the Westinghouse automatic brakes on the North British Railway. The train with the vacuum brake consisted of an engine, tender, eight "carriages" and three "vans," the total weight being 173 tons (of 2,240 lbs.). The train to which the Westinghouse brake was applied was similar to the above, and weighed 167½ tons.

The following table shows the results of some of these trials:

Speed in miles per hour.	Time in which train was stopped, sec.	Distance in which train was stopped, feet.	
Vacuum Brake:			
29.5	17¾	480	1 trial.
40	22.12	802.5	Average of 4 "
45	25.5	1,020	" 1 "
49.5	27	1,197.5	" 4 "
55	28	1,375	" 1 "
Westinghouse Automatic Brake:			
30	12.5	339	" 2 "
40	16	550	" 2 "
50	18.8	787.5	" 2 "
55	21	910	" 1 "

In 1877, another series of trials was made with the Westinghouse automatic brake on the Northeastern (British) Railway. The train consisted of twelve "coaches" and an experimental "van." The following are some of the results attained:

Speed in miles per hour.	Time in which train was stopped, seconds.	Distance in which train was stopped, feet.	
37½	12	380	1 trial.
50	15	610	"
60½	19.5	965	"
64	20	1,294	"

From these data, it is, we think, safe to say that the Pacific express at Jackson, if it was running 40 miles per hour, could have been brought to a dead stop in 600 ft., at 35 miles in 500 ft., and at 30 miles per hour

in 400 ft. The speed could have been checked sufficiently to prevent serious consequences in even less distance than this. People are apt to forget the enormous importance of a few seconds in time when a train is running at a high speed. At 30, 40, 50 and 60 miles per hour, the speeds are respectively 44, 58. 6, 73. 3 and 88 feet per second. A train therefore approaches danger with fearful rapidity during each second of time which is lost in applying the brakes, and therefore it is of the utmost importance that brakes should be so arranged as to be applicable in the quickest possible time. If poor Simmons, the engineer on the fatal train at New Hamburg, could have had, during these few precious seconds which preceded the collision on the bridge, a brake that could have been applied as quickly as he could think, how different the result might have been! There is nothing that we know of which is absolutely certain to prevent an axle of a freight car from breaking on a bridge again in front of an express train on the same road. With an efficient continuous brake, a score of lives might then be saved, which, without it, would be sacrificed uselessly.

It would be safe to predict that, sooner or later, on any road which runs heavy trains at high speeds without efficient continuous brakes, some fearful accident will happen which such brakes would have prevented. How long they can afford to bear the responsibilty of the absence of such appliances, is a question which it would perhaps be more profitable and less painful for some managers to consider before such accident happens, than it will be afterward.

It might also be wise for them to consider the following conditions which the English Board of Trade states that a continuous brake should fulfill:

"(*a*) The brakes to be efficient in stopping trains, instantaneous in their action, and capable of being applied without difficulty by engine-drivers or guards.
"(*b*) In case of accident, to be instantaneously self-acting.
"(*c*) The brakes to be put on and taken off, with facility, on the engine and every vehicle of a train.
"(*d*) The brakes to be regularly used in daily working.
"(*e*) The materials to be of a durable character, so as to be easily maintained and kept in order."

BLOWING UP THE BAGGAGE-MAN.

Boston papers, a few weeks ago, contained a story of a startling casualty in the Providence depot. Coles, a baggage express man, called for a trunk. The baggage-master found it for him and Coles grasped it by the handle and began dragging it toward his wagon, when there was a frightful explosion. Coles and a bystander were blown about and nearly killed. There was nought left of the trunk and contents but worthless fragments; these, however, showed that the trunk had been filled with gunpowder, shot, cartridges and other sporting materials, including a double-barreled shot-gun, supposed worth $200, but ruined by the shock. Without vouching for this account, there is doubtless a degree of peril to all concerned in railroad traffic from the presence of combustibles, explosives, acids, infected clothing, and other dangerous things concealed in baggage or freight packages. Such a lunatic as the one who made the explosion on the Daniel Drew; or such a miscreant as those who fitted up the infernal machine or packed the matches in the bale of cotton, for an ocean voyage, might perpetrate like acts on a train. The right and duty of making examination and taking precautions in cases where suspicion arises are worthy of notice. Many disasters have occurred, and have led the courts to affirm the right of the companies to know the dangerous character of the contents of packages, and the obligation of passengers or shippers to give warning. Every consideration justifies this view. The public have the right to have goods transported, but this is subject to an implied duty to give the carrier all needed information to enable him to discharge his duty with safety to himself and third persons. Packing dangerous substances in a way to conceal their character and withholding the information misleads and defrauds the carrier. He needs the knowledge for many purposes. He needs it to enable him to provide a proper car and stowage; for if, fully informed, he undertakes the transportation and there is a loss of it he may be liable if deficiency in the car was the cause. In a Pennsylvania case the company's men took into one freight car a quantity of refined standard oil, belonging to one shipper, and into a car coupled in front a quantity of crude oil belonging to another. The refined oil could not be lighted by sparks from the engine; but the crude oil, which was inflammable at lower temperature, could be, and was; and the fire spread to and burned the rear car because the couplings were not good enough to allow the rear car to be uncoupled and pulled back in season to save it. There were stipulations in the bill of lading that the shipper assumed risk of fire; but nevertheless the Court held the company liable for the loss of the refined oil, on the ground of obligation to provide couplings which could be promptly unfastened in such an emergency. Obviously the carrier must have the right to know what is being carried, to enable him to meet this obligation of providing a fit car. He needs it as a means of judging of the value and the consequent extent of risk and liability. There was an Illinois case of a car-load of carboys of nitric acid and sulphuric acid, which were destroyed by fire on the trip, and the Court would not allow the owner to recover for the loss unless he could show how many of the carboys were nitric and how many sulphuric; for the first would be worth about six times as much as the other. He asked to recover as if all were only sulphuric, but the Court said no. Evidently the carrier has the same need and right that the general, approximate value shall not be concealed. He may need to know as a ground for charging extra freight; as a reason for taking special precautions to protect other freight and passengers from injury; or as a means of enabling his servants who handle the goods to avoid disaster.

A case that occurred in Massachusetts puts the shipper's duty of disclosing the dangerous character of what he sends in strong light, because under the circumstances there was no real neglect. It occured in the days when dualin was a new invention, and its explosive character had not become known among freight agents. Some persons in North Adams wrote to manufacturers of dualin, ordering a quantity; and also wrote to manufacturers of "exploders" by which it might be fired, to send some of those. Both the factories were in Boston; and, as ill luck would have it, the goods from the two came to the depot to go to the buyer by the same train. They were stowed side by side; and on the trip, through the jar of travel, the exploders fired the dualin, and there was great damage done. The railroad company sued the manufacturers. It then appeared that the one package was plainly marked "dualin;" the other was not labelled as to contents. But the court held that the manufacturers and shippers were liable because, though neither had any cause to apprehend danger, for he could not suppose that the other article necessary to render this one dangerous would be packed alongside, yet they had omitted the legal duty to disclose the quality of the goods. Putting the unknown and mysterious word "dualin" on the box was not enough. All decisions have not gone as far as this, but we think this is the generally approved rule.

As respects transportation among the states or to foreign lands, the forwarding of nitro-glycerine, blasting oil, and similar compounds, at least unless specially packed and labelled, is forbidden by the United States Revised Statutes under severe penalties. But transportaton within a state is, of course, only subject to local laws. There are many state statutes, but independent of these the common-sense principle of the law is, that the shipper must give fair notice, either specially or by mode of packing and nature and usage of his business, of the dangerous character of what he sends.

It seems a proper and practical consequence, that where reasonable suspicion arises that explosives are in a package, a proper examination may be made, and a delay of the goods needed for that purpose would undoubtedly be justified. Station-agents and freight and baggage-men owe it to passengers and persons forwarding other goods, as well as have a personal right, to exercise proper scrutiny and care. This position is well illustrated by lawsuits which arose out of an explosion in San Francisco. The circumstances were that a box or case was brought to the New York freight office of Wells, Fargo & Co., addressed to San Francisco, which appeared to be all right, and was forwarded. In fact, it contained nitro-glycerine; but the affair happened twelve or thirteen years ago, and before carriers understood the little peculiarities of that article. No questions were asked, and no information was given about the contents. On the trip the case was observed to be leaking; something which, to the inexperienced eyes of the men in charge, looked like salad oil, was seen oozing from it. Therefore, when they reached San Francisco they took it into the back yard and began opening it with a mallet and chisel to see what was the matter inside. The "sweet oil" exploded, killed everybody near by, and damaged, very badly, the express office and the building adjoining, which was occupied by the Union Club. The owner of the club building and express building sued the express company for damages. The Court said the company was bound to repair its own office, but was not liable for the injury to the club building because not in fault; the agents of the company were justified under the circumstances in examining the leaky box; and, as they had no means of knowing the danger, they could not be called careless. The express company then sought for the shipper and sued him, in New York, to make good the loss sustained to the express building. The Court said he must pay. It was no answer to say that the express people brought the calamity upon themselves by trying to open the box. It was the duty of the shipper to have notified them what dangerous substance was within, and his neglect rendered him liable for the consequences of handling it like ordinary freight. The express men were not in fault in opening the case; on the contrary, it was their duty to do so and to stop the leakage.

The general result and the common sense, as well as the law of the matter, is that whoever forwards goods involving danger to those who handle them is bound to give warning without waiting to be asked questions, and if he does not, the carrier's agents may make such examination and take such precautions for their own safety and that of the public as are reasonable under the circumstances. Similar rules doubtless apply where there is reason to believe a crime is concealed; the persons who investigated the trunk in which Alice Bowlsby's corpse was sent to the depot would be justified by any judge and jury. There does not appear to be any case in which freight agents have suspected a box containing explosives, and have detained it for examination and found the contents innocent. Perhaps the owner might complain of delay. But in all probability the courts would hold that all goods are committed to carriers subject to an implied right to make examination appearing needed to secure the general safety, and that in making one, under circumstances of strong suspicion, the carrier does no wrong, and is therefore not chargeable with damages, even if the suspicion prove groundless.

The New Omaha Line.

The new route to Omaha will doubtless be in operation in a very short time, the track having been laid throughout on the Omaha Extension of the late St. Louis, Kansas City & Northern. The importance of this route has been much exaggerated; it owes its importance to the fact that it is an additional route between the Union Pacific and the East, and to the fact that certain Union Pacific directors have an interest in it, and not to any superiority in distance or otherwise. The distance from New York to Council Bluffs is 1,516 miles by this route, against 1,400 by the shortest and 1,479 by the longest route *via* Chicago, and to get this distance the new Wabash, St. Louis & Pacific has to use 70 miles of the Missouri, Kansas & Texas between Hannibal and Moberly, which it has a contract to use. This line will not pass through either of the great Western cities, Chicago and St. Louis, and this will not be favorable to its passenger traffic. The new line will be considerably the shortest between Council Bluffs and St. Louis, but not the only one by any means. From New York to Council Bluffs, by way of the Wabash, St. Louis & Pacific and *St. Louis* the distance is 1,577 to 1,594 miles, according as the Erie or the New York Central is used to Buffalo. But probably more passengers will go by St. Louis than by way of Hannibal, as it will often be an advantage to be able to stop at the former city. But it should not be forgotten that the entire traffic over the Union Pacific is a quite moderate one, and that this traffic is divided among many different lines east of Omaha, so that the share of any one cannot be very large. It is doubtless worth having, and the new line, considering the small amount of road that had to be built to complete it, and the local resources along that new line, was doubtless a very rational undertaking on the part of the Wabash, St. Louis & Pacific; but if any one thinks that it will be made rich by the Pacific traffic, he is egregiously mistaken.

The route for passengers by way of St. Louis to Council Bluffs is not so unfavorable as the difference in distance would indicate, for the reason that New York-St. Louis trains run faster than New York-Chicago trains. Considering the vastly greater travel by way of Chicago, this might seem an irrational arrangement; but it is founded on very good practical reasons. The journey to Chicago by present time-tables requires about 36 hours, and the man who has no time to spare makes it in two nights and one day. Now a reduction in the running time even to 24 hours is of very little advantage to the traveler; he still has to spend one day on the journey, and that was all the working time he lost when the journey lasted 36 hours. But to run at the same rate of speed to St. Louis would require some six hours more, and spoil a second day for the traveler, so the St. Louis trains run faster and the journey between New York and St. Louis requires substantially the same time as that between New York and Chicago. Now, as the distance between St. Louis and Council Bluffs is about 80 miles less than that between Chicago and Council Bluffs, it will be easy to make just as good time by way of St. Louis as by way of Chicago, if schedules east of those cities are kept as at present. As the lines by way of Chicago have heretofore had pretty much all the Pacific travel, they might be expected to increase their speed to offset this, if there was any advantage in it, and if the game were worth the candle. But there will be no advantage in landing the passengers at Omaha before the Union Pacific train starts, and there is but one through train a day, and the traveler will not particularly care for a change which permits him to leave New York at midnight or in the morning instead of six or eight o'clock the previous evening. And if he did, it is doubtful if three lines to Chicago would increase ma-

terially the cost of running their trains between that place and New York and discommode their immense Chicago travel for fear of losing even a considerable fraction of the comparatively trifling Pacific travel. There has been, however, some disposition to make changes to meet the new competition, and if the traffic were larger, probably something would be done. The rates will doubtless be the same by all routes, which will give the line from St. Louis a smaller proportion than those from Chicago to Council Bluffs get. It will be a remunerative rate, however, unless it is reduced from the present figures.

Record of New Railroad Construction.

This number of the *Railroad Gazette* contains information of the laying of track on new railroads as follows:

Dayton & Southeastern.—Extended from Musselman, O., east by south to Chillicothe, 11 miles. Gauge, 3 feet.

Shenandoah Valley. — Extended from Berryville, Va., south by west to White Post, 9 miles.

Kansas City, Ft. Scott & Gulf.—Track laid on the *Joplin Branch*, from Girard, Kan., eastward to Joplin, 15½ miles.

St. Louis, Kansas & Arizona.—Extended from Ossawatomie, Kan., southwest to Garnett, 21 miles.

Boston, Hoosac Tunnel & Western.—Extended from Hoosic Corners, N. Y., to Eagle Bridge, 6 miles.

St. Paul & Sioux City.—Track on the *Rock River Branch* is laid from Luverne, Minn., southward to Doon, Ia., 28 miles. The *Black Hills Branch* is extended west to Summit Lake, Minn, 10 miles. The *Ft. Dodge Branch* is extended from Shelbyville, Minn., southward to Blue Earth City, 11 miles.

This is a total of 111½ miles of new railroad, making 2,619 miles thus far this year, against 1,527 miles reported for the corresponding period in 1878, 1,629 in 1877, 1,770 in 1876, 920 in 1875, 1,242 in 1874, 2,955 in 1873 and 5,312 in 1872.

ANOTHER ADVANCE IN EAST-BOUND RATES was resolved upon at the Joint Executive Committee meeting this week. This advance seems fully justified by the condition of the traffic. Every road complains that it has more traffic than it can get cars for, lake and canal rates continue to advance, and the week after the last advance the shipments were greater than many other weeks since the pool was formed, and probably the largest the roads ever carried without any exception. This a condition of things without precedent since the fall of 1873, when also there was a great pressure of traffic, and one which the railroads had hardly expected to see so soon again. It is not that there has not been a heavy traffic before: there was in the fall and winter of each of the two preceding years an enormous one; but there has been no such pressure of traffic when rates were so high, though there was something very like it in the fall of 1877, though followed by a winter of low rates. The best of it is that the activity promises to continue through the winter with rates fully maintained. What this means to the railroads may be gathered from the fact that last winter, while navigation was closed, about 72,000,000 bushels—say 2,000,000 tons—of grain (not including flour) were delivered by rail to Eastern exporting cities, on which the average rate received could not have been much more than 20 cents per 100 lbs. The addition of 20 or even 15 cents per 100 lbs. to the rate on such traffic, not to speak of the great traffic in flour and provisions, and in grain to interior points, means an addition of several millions of dollars to the winter earnings of the railroads between the East and the Mississippi, of which those will get the largest share which carry the most through freight. Heretofore, immense harvests and through shipments, though for the most part carried over the trunk lines, have profited only the Western railroads, the rates over the Eastern roads being too low to yield any profit at all, or only a meagre one.

But it was fully time that there should be some advance, for prices have so advanced that hereafter it will cost considerably more to operate the roads. They have not yet felt the advance very greatly, for many important supplies are contracted for some time in advance; but they will feel it very decidedly this winter, and hereafter, if prices are maintained.

The advance in the prices of grain have been such that no objection seems to be made to the advance in freights. The rise of wheat alone within a few weeks has made that crop worth about $80,000,000 more in the farmers' hands, and if the freights were lower in this case, the consumers, foreign and Eastern, would probably get very nearly or quite the whole benefit of it. At all events, when traffic presses as it now does, there is practically no way to adjust the supply of cars to the demand, except by advancing rates. A hundred and twenty car-loads are offered for a hundred cars now with the grain rate 35; when it is made 40, probably but 101 or 100 will be offered. It is, of course, possible that the demand may slacken again, and it is not impossible that it may become advisable to reduce the 40-cent rate before spring, though that would be an unexampled proceeding—that is, to make a regular winter rate lower than a regular fall rate. We must bear in mind, however, that for two years past the actual winter rates have been very much lower than the fall rates, and in both of these winters it seems to us extremely doubtful whether the highest fall rate could have been maintained all winter—that is, without a loss of profit to the railroads.

THE NEW GEORGIA RAILROAD LAW is in some respects a novelty in American railroad legislation. The railroad commissioners are given very extensive powers, but not quite as great as the California commissioners have under the new constitution, while there is very much greater chance that the commission will be capable, disinterested and unbiased. For the Georgia law prescribes not only that the commissioners shall be appointed by the Governor, but, like the English law, that one of them shall be an expert in railroad business and one a lawyer. They are, however, given the great and dangerous power of actually making—not approving, but making—schedules of rates for fares and freights for all the Georgia railroads. If these schedules were to be actually in force, this would be a task beyond the powers of any three commissioners. But the requirement of the law is that they shall make "reasonable and just" rates, so that they will probably fulfill their duty by what will substantially be schedules of maximum rates, which will generally permit the railroads to charge less. These schedules are to be advertised (a pretty plum to the Georgia newspapers) and are to be "sufficient evidence" that the rates therein named are just and reasonable. The Illinois law only went so far as to make the commissioners' schedule *prima facie* evidence of reasonableness; but the railroad company might come into court and prove, if it could, that higher rates complained of were only reasonable. The Georgia law apparently will not permit any judicial inquiry into the reasonableness of the commissioners' schedules.

A peculiarity of the Georgia law is the requirement that all contracts and agreements of railroads with each other must be submitted to the commissioners "for inspection and correction." There was, as there has been elsewhere, a disposition to prohibit combinations among the railroads (Georgia, it will be remembered, is the headquarters of the Southern Railway and Steamship Association); but the arguments of the railroad managers doubtless convinced the members of the Legislature that the "pooling" of business might be decidedly in accordance with the best interests of the community. Where the state is represented by experts really understanding the interests of the shippers as well as the business of transportation, there could hardly be any difficulty in securing its indorsement of any combination which the railroads would be likely to make, and there is a good deal to be said in favor of this feature of the law.

In this connection attention should be called to the excellent work which some of the Georgia railroad officers did while the railroad question, was under consideration in the Legislature. We have published some excellent letters written by them, and we have since received pamphlets containing arguments made by Gen. E. P. Alexander, President of the Georgia Railroad, and Mr. H. S. Haines, Superintendent of the Atlantic & Gulf—thoroughly good pieces of work, full of information and argument clearly stated, and presented with such evident desire to get at the truth, and state the question fairly, as to command confidence at once. The South is fortunate in having such men on its railroads, and there is room for some more of the same sort in the North—thorough students of railroad policy, capable expositors of it, and too fair-minded and eager to get at the truth to become special pleaders even when they become advocates.

THE LAST COTTON CROP cannot yet be estimated with accuracy, because it is not yet all harvested, and the weather from now to Christmas will affect it somewhat. But aside from this, the reports vary so that even approximate estimates are difficult. The acreage reported by the Agricultural Department is 12,509,971 acres this year, against 12,269,121 last—an increase of 240,850 acres, or less than two per cent. Now, by applying to these figures the estimates of the average yield *per acre* this year, the *Commercial and Financial Chronicle* makes out a total yield of 5,013,571 bales this year, or about 60,000 bales less than last year's crop. But by taking the reports of the cotton exchanges as to the relative increase or decrease in each state, the result is a crop of only 4,601,810 bales this year. Then the figures of "average condition" reported by the Agricultural Department this year indicate a crop of 4,901,444 bales, or two per cent. less than last year. Its conclusions are that the Agricultural Department's figures indicate a crop of not more than 4,902,000 and not less than 4,730,000 bales, while the reports of the cotton exchanges show it to be not more than 5,014,000 and not less than 4,600,000 bales, the largest amount being a little less than last year's crop.

It is of interest to the carrier to know where the crop is larger and where smaller than last year. The cotton exchange reports indicate an increase of 4 per cent. in the total yield in Tennessee, and a "slight" one in Mississippi. In all other states they state the total yield to be less, except Arkansas, where it is about the same, and Georgia, which is not reported. The percentage of decrease in total yield is given as 22 per cent. in North Carolina, 20 per cent in South Carolina, 20 per cent. in Alabama, "slight" in Louisiana, and no less than 27 per cent. in Texas, which was the largest producer last year. Georgia, which stood next to Texas last year, is not reported at all. Florida is simply said to have produced "less," but its total production is trifling. But by the estimates of yield per acre multiplied by the Agricultural Department's estimate of acreage (which gives the largest total yield for the country), there would be a decrease of 18 per cent. in North Carolina instead of 22, a decrease of 17 per cent. in South Carolina, instead of 20, a decrease of 25 per cent. in Georgia and 6 per cent. in Florida, a decrease of only 9 per cent. in Alabama, instead of 20, the enormous *increase* of 63 per cent. in Mississippi, instead of the "slight" one reported by the exchanges, an *increase* of 18 per cent. in Louisiana, instead of a slight decrease, a decrease of 29 per cent. in Texas instead of 27, an increase of 23 per cent. in Arkansas, instead of being "about the same," and a *decrease* of 32 per cent. in Tennessee instead of an *increase* of 4 per cent. With such variations in the estimates it is hardly safe to conclude on anything except where they agree approximately, which they do on the yield of the Carolinas and Texas. The activity of the railroads depends so largely in these states on the yield and price of cotton that they are greatly interested in knowing what the crop is. The price, though lower than it has been, is still considerably higher than at this time last year, and the appearances are that a crop of 4,700,000 bales will bring the planters about as much as the 5,073,000 bales produced last year.

RAILROAD RATES IN BELGIUM have the reputation of being exceptionally low, as, in a country with the densest population in Europe, a vast movement in coal, ores, iron manufactures, etc., and extremely cheap labor and iron, they might be expected to be. The report of the Minister of Public Works for 1877 gives the average rates received that year on the state railroads as 0.19 franc, or 3.686 cents, per passenger per league of 3.107 miles, or 1.186 cents per mile, which is probably the lowest average rate in the world, unless it may be on some of the Indian railroads, where there is a very heavy traffic in natives, carried very much like cattle. More than four-fifths of the Belgium passengers were of the third class, and nearly two-thirds of them traveled on round-trip, commutation, workmen's or other tickets at reduced rates. There is a separate charge for baggage, the receipts from which in 1877 were equal to about 2½ per cent. of the passenger receipts.

The average rate received for heavy freight (excluding live stock, and some other articles which pay higher rates), was 0.252 franc (4.889 cents) per ton of 2,204 lbs. per league of 3.107 miles, which is equivalent to 1.431 cents per ton of 2,000 lbs. per mile, against an average of 0.9994 cent on the New York railroads in the year ending with September, 1878—that is, the average New York rate was just 30 per cent. lower than the average Belgian rate. The Belgian live-stock rate was 1.96 cents per ton per mile.

If the New York railroads that year had done *all* their business at the Belgian rates, they would have earned $11,874,340 *less* from passengers (at 1.186 cents per mile instead of 2.3543 cents), but $25,064,138 *more* from freight, so the aggregate result would have been an increase of $13,189,798 in their net earnings, which would have enabled them to double, very nearly, the dividends they paid.

The system worked by the state includes 1,340 miles of road, or about one-third more than the New York Central & Hudson River Company works. The traffic of the two systems compares as follows:

	Passenger miles.	Ton miles.
Belgian state roads	475,037,955	684,169,020
New York Central & Hudson River	300,302,140	2,042,755,132

Thus, the Belgian roads had 58 per cent. more passenger traffic than the New York Central, but the latter had very nearly *three times as much* freight traffic as the Belgian state roads. The Belgian traffic *per mile of road* was 354,506 passenger miles and 510,574 ton-miles, equivalent to 485½ passengers and 700 tons of freight each way daily over the whole length of the road. Only the New York, New Haven & Hartford and the United Railroads of New Jersey among American roads have so heavy a passenger traffic, but a list which we published Sept. 13, 1878, showed no less than twelve American roads with a heavier freight traffic.

A ST. PAUL-MONTREAL RAILROAD is the latest "great trunk line" projected, and we should say the least rational. The proposition is to construct a railroad from St. Paul across Northern Wisconsin and the Upper Peninsula of Michigan, where there is hardly any population and scarcely any source of traffic except lumber, to Sault Ste. Marie, 425 miles, to be met there by an extension of the Canada Central through the wilderness by Lake Nipissing, about 250 miles, making, in connection with completed roads, a line about 1,000 miles long from Montreal to St. Paul. This would be a very direct line, and about 200 miles shorter than any now existing from St. Paul to tide-water; but its capital defect is that about three-fourths of the line would have to be supported almost wholly, at least for many years to come, by the through traffic, and the only through traffic it could command would be that from St. Paul and from the country west of St. Paul. All this would have to be carried not only in competition with the existing railroads and the present lake and canal outlet, but with the improved outlet of the lakes which Canada itself is now making, and which is expected pretty soon to enable large lake vessels to pass directly from Chicago, Milwaukee or Duluth (the latter but 156 miles from St. Paul) to Kingston or Montreal. Therefore the new road would have to carry its through traffic, which would be pretty much all its traffic, at the lowest possible rates, and if it had to accept the average rates received by other roads for through grain and flour since 1875, it is very doubtful whether it could earn its working expenses, even if it got *all* the business of St. Paul and the country west, to the exclusion of the existing roads and the water routes. Of course it could in any case obtain only a share of the traffic, and in all probability not the largest share. Some would go to Duluth, some to Milwaukee, some to Chicago and some would go through by rail to New York, Philadelphia and Baltimore; some, perhaps, directly down the Mississippi, whose mouth is now wide open to receive it. If, under these circumstances, a new railroad is built from St. Paul to Montreal, it will probably be by St. Paul itself, which alone would be likely to profit by it. Of course the people along the line—what few there are—would be delighted to have some one build a railroad for them, but those who have the money will probably object.

THE TRAFFIC OF THE NEW YORK ELEVATED RAILROADS was touched upon recently at the Assembly Committee's in-

vestigation. The average number of passengers daily over each of the three lines of elevated railroad in New York in each of the three months ending with September was stated as follows by a witness:

	July.	Aug.	Sept.	The three months.
Third avenue.....	71,704	71,698	83,048	75,401
Ninth avenue.....	10,269	9,376	9,725	9,995
Sixth avenue.....	42,467	40,751	54,079	45,180
All lines.....	124,440	121,926	146,852	130,576

The average daily earnings were $6,129 on the Third avenue line (8½ miles), $715 on the Ninth avenue (5 miles), $3,559 on the Sixth avenue (an average of about 6 miles), or an average per mile for the three months of $67,512, $13,160 and $54,551, respectively, or for the whole system $46,500. The Sixth avenue line appears to have been most affected by the summer dullness, as was to be expected, as a large share of its regular patrons are out of town then. It seems to have had much less traffic then with two additional important stations, and part of the time two other unimportant ones, than it had a year ago, if the traffic then reported indefinitely was correctly stated. The earnings per mile are certainly very large on the Sixth and Third avenue roads, the latter leading—which we would hardly have suspected. Hereafter, the Sixth avenue line must show very much lighter earnings per mile, as it has about 4½ miles of new road from Fifty-ninth street to One Hundred and Forty-fifth, where the population is small and the traffic very light. But what traffic there is on this new part of the road adds to the pressure on the part below Fifty-ninth street, which is already so great that there seems absolutely no way to provide for any further addition, and what can be done when the district west of Central Park is well built up is a serious question. It is evident that the road ought to have been made to carry large trains; it is hardly practicable to put any more on during the busy hours, as they are already less than two minutes apart.

LAKE AND CANAL RATES have advanced during the past week, and canal rates quite rapidly. The advance in lake rates is half a cent a bushel, to 8 cents for corn and 8½ for wheat from Chicago and Milwaukee to Buffalo, but half a cent less was sometimes accepted last Wednesday. Canal rates have gone up from 7 cents for corn and 8 for wheat from Buffalo to New York to 9 and 10 cents, and Wednesday the boatmen were asking 1 cent more, which caused shippers to hold off. The highest wheat rate by canal in 1878 was 8½ cents, in 1877 12 cents and in 1876 10 cents. Ocean rates have been lower, generally 8d. to 9d. by steam from New York to Liverpool, but going as low as 7½d. Tuesday and Wednesday.

London Meeting of the New York, Lake Erie & Western.

A meeting of the share and bondholders was held at the Cannon Street Hotel on Wednesday, Oct. 8, 1879, Sir Edward W. Watkin, M. P., in the chair.

The Chairman said: Gentlemen, that which we have asked you to meet for to-day I think myself might be summed up in three words of Sir Robert Peel on a celebrated occasion, "Register!" "Register!" "Register!" It is very odd that the bond and stockholders of the Erie Railway appear not to be really informed of their exact position. Now I will tell you what it is. There is to be a meeting of the company on the 25th of the following month of November, at New York, and at that meeting all the directors, 17 in number, will go out, and 17 more, either the same or others, will have to be elected. Mr. Powell and myself, with Mr. Westlake, all of us being now present, as the voting trustees, deemed it to be our duty to call you together in order that you may thoroughly understand where you are, so that if you do not take those precautions which prudent men adopt to protect their own interests by taking the measures which are amply sufficient for the purpose, which we have been the means of providing, then the responsibility will be yours and will not be ours. (Hear, hear). Now, the position you are in is this: Half the shares that are registered are to be voted upon by the voting trustees, myself, Mr. Powell and Mr. Westlake. Therefore unless somebody does that which is impossible, namely, votes more than half, the voting trustees have practically the control of the voting of the ordinary and preference stock. Then, in addition to that, our power to exercise that voting power annually, or whenever there are meetings of the company, extends for a period of three years until after the full dividend has been paid upon the full amount of the preference stock. Therefore you see our duty is not merely a responsible one, and to some extent a powerful one, but it is a rather long continuing one, the shorter the better. In addition to that (we having the right to vote for one-half), all the registered shareholders and holders of Erie bonds, and all the different classes, have also the right of voting at all elections of directors, and their rights extend "to one vote for each $100 in nominal value of bonds held by them respectively at a date 30 days previous to such election or general meeting." Therefore you will say, "We need not alarm ourselves; everything will go on right because you, the voting trustees, can vote half the shares, and it is quite impossible the other half will vote, and therefore you are the masters of the situation;" but it is my duty to point out to you that all the bondholders have votes, and a good deal must depend, of course, in a narrow contest on the votes of the bondholders. Now, we are informed, although what truth there is in it I do not know, that attempts have been made in New York to buy the ordinary stock of the company with a view to prevent its being registered. Now if you could suppose that which is possible—I do not mean to say it is probable, but is possible—that only a small proportion of the ordinary shares and preferences shares were registered, and a large number of the holders of bonds in America were to go and register their bonds, and vote themselves, it is not impossible we might be out-voted. It is in that state of things, and in the midst of all the rumors and ups and downs of stock we now see, and which to me are in a very great manner incomprehensible, that we have thought it our duty to call you together, so that there should be no mistake as to your full knowledge of the matter, and your knowing what you ought to do. Well, what we ask you to do is, to have your bonds registered and give your proxies, according to the form which is before you now, and collecting our proxies let us show at the election at New York on the 25th of November, as large an amount of representation as possible. (Hear, hear.) Now, I believe this has happened to a very large number of the English investors, that finding they could either get all their money back, or something more—in some cases a good deal more—they have, with a commendable prudence, allowed Brother or Cousin Jonathan (whichever he is), to have their property, and the hope of the Englishmen is, that as a very large amount of the property is now held on the other side of the Atlantic, the Americans having an interest in the good-will of the property will look after it. I sincerely hope that it will be so. Now, gentlemen, I will tell you a surprising announcement that has just appeared, which will rather astonish you, for I did not know before that I was ever suspected of being able to be in two places at once. I have here a cable, which has been received by Mr. Ayers, our Secretary, from Mr. Jewett: "Party here claims to have received cable that Sir Edward Watkin started for New York on Saturday, prepared to transfer the Trustees' proxies to Vanderbilt." Of course, I need not tell you all these disquieting rumors, I should only appeal to prudent people to take the ordinary protection and the ordinary precaution of being able to vote upon the stock and bonds they possess, in order that they may have a proper representation.

Now, gentlemen, having given you that very good advice, I will say just a word or two in reference to the progress of the traffic and net revenue during the half-year. Now, from all the information that I can collect, I believe that the revenue of $16,000,000 will be earned in the year 1878-79, which we always expected would be earned, but, unfortunately, from the great competition which they call "cutting of rates," combinations about coal and so on, a very large increased amount of work has been done with a reduction in the amount of net profit. Now I will read you an extract from a letter of Mr. Jewett; he says:

"We could not control the coal roads and companies in their unaccountable persistency in a policy which will not only weaken, but must eventually, unless checked, destroy many of them. Our revenue is largely derived from the business of those companies. We had to compete in the oil traffic with the pipe lines, who were seeking to divert that business from the railroads, with a view of protecting ourselves for the future, believing that through that competition we would eventually bring about such arrangements as would protect the railroads in the proper proportion of that traffic. We had also to maintain our position in the market as a carrier, notwithstanding the fact that the competitive rates were reduced to almost nominal figures; otherwise when rates were advanced we would be unable to control this proportion of the traffic to which we were legitimately entitled. And the fact that under all these circumstances we were enabled to increase largely the business over the road, which would secure to us a largely increased net, as well as gross, revenue, when the competition was over, ought rather to encourage than to discourage the shareholding interests in the company. In my judgment, we have shown more strength and ability to compete in the contest through which we have passed than it was reasonable to suppose we had, and that our position is to-day much stronger than it ever was, and that at the hands of our competitors we command a greater degree of consideration than we have ever heretofore commanded. Without our New England line being open, with all the disadvantages of still using largely a single track, we have increased our tonnage, for the first nine months of the present fiscal year, equal to a ton for every mile hauled of 211,470,024 tons over the corresponding months of last year, a relative increase, I think, greater than that made by any other line, and which, at the low rate of a cent per ton per mile would have given us an increased revenue, substantially, of over two millions of dollars without any increased expenses. Indeed, if our own traffic had been at the low rate of a cent per ton per mile, our net revenue for the nine months would have been far in excess of our net revenue for the entire fiscal year of 1877-8. The simple results, without considering the attending circumstances and the probable future consequences, may be discouraging: but I think if you were here you would concur with me, that we have done a good work which will result permanently to our advantage, and prevent any recurrence of the policy which was inaugurated by some of our competitors hoping to show their strength and our weakness."

Gentlemen, although we must all much regret to see so large an amount of work done for such an inadequate payment, it is certainly satisfactory to note that the great American railways have agreed to appoint a Board of Arbitration, with a view, if possible, to settle their differences without a contest, and also that much of the competitive traffic has been divided. I do not know that I need trouble you with any further remarks. I have told you the reason we have called you together; I ask you to exercise your franchises carefully, and I have told you all I know about the probable state of the accounts for the past year. (Hear, hear). I think that is all I have to trouble you with; but for the sake of form I will just move "That this meeting of bond and stockholders, resident in this country, do register their bonds and send their proxies to New York."

Mr. T. W. POWELL.—I will second that. I do not know that I have much to add except this, that it seems rather a critical time, and I do not myself see how the business can be very well managed unless the proprietors think fit to accept the willingness of Sir Edward Watkin, which he has intimated to me, to go out on this occasion to look after their interests. (Hear, hear, and applause.) It may be that if Sir Edward Watkin goes out he may find he has gone out unnecessarily, but, on the other hand, it may be we shall find he has gone out to great advantage. It is one of those cases where we cannot possibly see beforehand what may be wanted in the next few weeks, and I think that nothing more prudent could be done than that Sir Edward Watkin (who is willing to go and face the disagreeables of the sea at the latter end of the year) should be taken at his word, and allowed to go out armed with the proxies of every one who will entrust them to him, and also that Mr. Ayers, the Secretary of the voting trustees, and the company's agent should go with him, so that if Sir Edward should finish his business and not find it necessary to wait for the meeting, he might leave Mr. Ayers behind armed with the proxies and the right to vote. (Hear, hear). I cannot see that anything less than that ought to be done, and I think the bondholders and proprietors present should express their desire to that effect to Sir Edward, and as he is quite willing to go, I think he ought to be taken at his word. (Hear, hear). It is, of course, impossible to conceive what may happen, as far as one can look into the mysterious proceedings that are going on; it looks as if there was a contest going on in New York between some two interests to catch up a large amount of voting power in the Erie Company. We know that this contest is not in any way taken part in by the people on this side of the water, and we have not the smallest reason to suppose that Mr. Jewett or any of his board are taking any active part in that contest. So it would seem there are two outside parties, each of whom, for some purpose or other, is anxious to gain a large amount of voting power for the next election, and such parties certainly ought to be watched. To put it in a plain manner, we do not suppose that great people and rich people take a great deal of trouble and buy a large amount of property without a purpose, and it may be perhaps, that their purpose may be something that may militate against the advantage of the Erie Company. We cannot disguise from ourselves this, that the Erie line is a very important competitor of Mr. Vanderbilt's line, and I do not see that it is to be assumed that if Mr. Vanderbilt came into power he would become at once satisfied to work the Erie Railway against his own existing interests. We must look at it calmly and clearly. Mr. Vanderbilt holds a highly respectable position in America, and is a man of eminence and power, but it does not follow because he is so rich that he would work the Erie line in the interests of the Erie proprietors and bondholders. Therefore, it is not because he is a man of great wealth and power that we should put the Erie Railway under his control. For these reasons I recommend the bondholders, as Sir Edward is willing to go, to take him at his word.

The resolution was put to the meeting and carried unanimously.

THE CHAIRMAN.—With regard to going to America, I hope it may not be necessary that I or one of the other trustees should go to America, but if it is necessary I certainly shall not shrink from a duty which I look upon as incumbent upon me (Hear, hear, and applause). That concludes our business, gentlemen.

Mr. CONYBEARE.—I rise to move a vote of thanks to Sir Edward Watkin and the other trustees, and more especially to Sir Edward Watkin, for his readiness and willingness to go abroad. But I wish to add a word to my vote of thanks as to what the bond and stockholders ought to do. I think you should back up loyally those who have worked so loyally for you, and I should have been wanting in loyalty myself if I had not come up this morning and given my proxy for my holding, which is a very considerable one in bonds, to those who have worked so well for us. Therefore I say every one of you are bound to send in your proxy for every bond and share you hold, in order to support the influence of Sir Edward Watkin or Mr. Ayers, or both of them, on the other side of the Atlantic. They have worked so well for you that you may trust them to do it again, and they may be able to tell you more when they come back of this extraordinary rise in the value of our property out there. (Hear, hear.)

The resolution was carried unanimously.

The CHAIRMAN.—We are very much indebted to you, gentlemen. I have to remind you that during five years—we have been nearly five years engaged upon this business—the salable value of the property has increased about eleven millions sterling, and I believe every Englishman who wishes to get rid of his property and realize his money, and put it in something he can daily see, can do so if he pleases without loss—at least, I hope so. We have done our business in the full light of day, and I believe it is the publicity, the frequent meetings and many discussions, which have given us the position of moral authority we at present possess. (Applause.) I thank you very much for your vote of thanks.

The meeting then separated.

General Railroad News.

MEETINGS AND ANNOUNCEMENTS.

Meetings.

Meetings will be held as follows:

Baltimore & Ohio, annual meeting, at the office, Camden Station, in Baltimore, Nov. 17, at 10 a. m. Transfer books close Nov. 8.

New York, Lake Erie & Western, annual meeting, at the office, No. 187 West street, New York, Nov. 25, at noon. Transfer books close Oct. 25.

Dividends.

Dividends have been declared as follows:

Boston & Albany, 4 per cent., semi-annual, payable Nov. 15.

Camden & Atlantic, 3½ per cent., on the preferred stock, payable Nov. 1.

Mail Service Extensions.

Mail service has been ordered over railroad lines as follows:

Clarkson, Weston & Glenville.—Service ordered from Clarksburg, West Va., to Weston, 26.25 miles, from Nov. 1 next.

Brotherhood of Locomotive Engineers.

The Grand International Division of the Brotherhood met in annual convention in Kansas City, Mo., Oct 15, about 150 members from all parts of the country and Canada being present. Mayor Shelley delivered an opening address of welcome, followed by R. T. Van Horn, after which the opening address was delivered by P. M. Arthur, Grand Chief Engineer. Mr. Robinson, Second Chief Engineer, of Canada, delivered a short address, mostly devoted to temperance, after which the programme for the session was arranged.

The business sessions then began, and were expected to continue until Oct. 23. As usual, the business was conducted with closed doors.

On Oct. 21, the Grand Division elected officers for the ensuing year, only one or two changes being made. It was resolved to hold the next annual meeting in Washington.

October Meeting of the Joint Executive Committee.

The subjects announced for consideration at the meeting in New York beginning Tuesday of this week were given as follows in the circular calling the meeting:

"1. Report of Committee on Classification. [Since circular No. 106 was sent out asking for vote upon adoption of this report, a number of amendments have been offered, which have to be considered in meeting.]

"2. The adjustment of rates from Evansville.

"3. Chicago terminal roads will consider questions which have arisen in regard to traffic included in the Chicago Division.

"4. St. Louis terminal roads will consider the division of west-bound traffic and other questions relating to division of east-bound traffic from that point.

"5. La Fayette terminal roads will consider the division of traffic from that point.

"6. The maintenance of passenger rates and the report of the meeting of General Passenger Agents of Sept. 11 and 12 will be considered. Every other subject relating to the business of the joint Executive Committee may be brought before the meeting."

There were represented at the meeting the following railroad companies: Atlantic & Great Western, by J. H. Devereux; Baltimore & Ohio, by Milton H. Smith and A. C. Rose; Boston & Albany, by Wm. Bliss; Canada Southern, by W. H. Perry; Great Western, by G. B. Spriggs; Indianapolis & St. Louis, by J. C. Noyes; Lake Shore & Michigan Southern, by John Newell; New York Central & Hudson River, by E. Clark, Jr.; New York, Lake Erie & Western, by R. C. Vilas; Pennsylvania Company, by J. N. McCullough; Philadelphia, Wilmington & Baltimore, by John S. Wilson; Wabash, St. Louis & Pacific, by A. L. Hopkins.

The attendance being small, the consideration of passenger traffic was omitted.

Some amendments were suggested to the east-bound classification submitted by the Cincinnati committee meeting, which will have to be submitted to a vote of the full committee before being introduced.

The most important action of the meeting was to resolve

upon another advance of 5 cents per 100 lbs. in the westbound rates on grain and fourth-class freight, to go into effect Monday, Nov. 10.

A proposition was made to change the proportion of the St. Louis provision rate to the Chicago rate, which was referred but not acted upon.

Central Association, General Passenger & Ticket Agents.

Pursuant to call, this association met at the Grand Pacific Hotel, Chicago, Oct 16. Seventeen out of the 44 roads in the association were represented. The gentlemen were as follows:

E. A. Ford, Vandalia Line, Chairman; Geo. H. Daniels, Chicago & Pacific, Secretary; H. C. Wentworth, Michigan Central; W. A. Thrall, Chicago & Northwestern; J. R. Wood, Chicago. Burlington & Quincy; W. P. Johnson, Illinois Central; Frank Snow, Canada Southern; H. C. Townsend, Wabash; J. B. Mahony, Peoria & Rock Island; Robert F. Nathan, Green Bay & Minnesota; A. J. Smith, Cleveland, Columbus, Cincinnati & Indianapolis; H. Monett, Pittsburgh, Cincinnati & St. Louis; Mr. Summerville, representing James Charlton, Chicago & Alton; W. H. Stennett, Chicago & Northwestern; F. R. Myers, Pittsburgh, Fort Wayne & Chicago; J. W. Cary, Lake Shore & Michigan Southern; John Eagan, Kankakee Line; C. H. Rockwell, Indianapolis, Peru & Chicago; M. L. Ettinger, Chicago & Iowa; A. E. Clark, representing W. B. Shattuc, Atlantic & Great Western; G. W. Smith, La Fayette, Bloomington & Muncie.

The meeting affirmed the proceedings of the late meeting at Cincinnati, and revised the colonists' rate sheets. To reach the first conclusion required a good deal of time, though it was at last carried through unanimously. The result is expected to be seen in a better keeping of the passenger rates east of the Mississippi River. Another advantage will be the gaining of more uniformity and economy in the issuance of round-trip tickets.

The meeting adjourned without doing as much as was intended, owing to the small attendance. The next meeting will be held on call of the Secretary, who, in the meantime, will acquaint the general managers by letters, with some details of the measures which it is proposed to adopt.

The subject of the general pool between east and westbound roads did not come before the meeting.

Southwestern Railway Association.

A dispatch from St. Louis, Oct. 22, says: "At a meeting of the Southwestern Association here to-day, at which there was a full representation, the general freight agents submitted a report on the new classification, which was in harmony with the classification of the roads west of the Missouri River, adopted Oct. 10, which was agreed to. It was also agreed that hereafter everything, excepting live stock, shall be rated by the 100 lbs., instead of by car-loads. The Omaha extension question did not come up. Therefore, there was no re-arrangements of percentages. Another session will be held to-morrow."

ELECTIONS AND APPOINTMENTS.

American Society of Civil Engineers.—The Nominating Committee has presented the following list to be balloted for: President, Albert Fink; Vice-Presidents, James B. Francis and Octave Chanute; Secretary and Librarian, John Bogart; Treasurer, J. James R. Croes; Directors, William H. Paine, C. Vandervoort Smith, Charles Hermany, Edgar B. Van Winkle, Gouverneur K. Warren. Mr. Fink is now First Vice-President. Mr. Bogart is the present incumbent. Ballots are sent by letter, and to be counted must arrive by Nov. 5, when the annual meeting is held.

Atlantic & North Carolina.—Mr. Sol. Haas has been appointed General Freight Agent. He is also General Freight Agent of the Richmond & Danville, and its leased lines. His office is in Richmond, Va.

Boston, Revere Beach & Lynn.—At the annual meeting in Boston, Oct. 16, the following directors were chosen: Edwin Walden, John G. Webster, John B. Alley, Edward Tyler, David Loring, T. B. Dix, Henry Breed, David L. Webster, Charles W. Slack, A. B. Martin, N. Gibson.

Brotherhood of Locomotive Engineers.—At its convention in Kansas City, the Grand Division elected the following officers: P. M. Arthur, Grand Chief Engineer; T. S. Ingraham, First Grand Engineer; Charles Fletcher, Second Grand Engineer; W. H. Neal, Second Grand Assistant Engineer; D. Bennett, Third Grand Assistant Engineer; J. E. Robinson, Grand Guide; G. W. Tyre, Grand Chaplain.

The Insurance Association elected P. M. Arthur President; T. S. Ingraham, General Secretary and Treasurer.

Chicago & Alton.—A circular from General Superintendent Van Horne, dated Oct. 13, says:

"From this date the division superintendents will control and be responsible for the train service on their respective divisions. O. Vaughan, Assistant Superintendent, at Bloomington, will control the distribution of rolling stock between the divisions. The local distribution of cars will be attended to by the division superintendents."

The following appointments are announced: A. H. McGregor, Chief Train-Dispatcher, and to act also as Train-Master, Chicago Division. M. Steele and E. Styles, Assistant Train-Dispatchers.

J. F. Angel, Chief Train-Dispatcher, and to act also as Train-Master, St. Louis Division. J. A. Welden, Assistant Train-Dispatcher.

J. A. Jordan, Chief Train-Dispatcher, and to act also as Train-Master, Jacksonville Division. E. S. Needles, Assistant Train-Dispatcher.

Chicago, Burlington & Quincy.—Mr. F. H. Tubbs has been assigned to duty on the Iowa Division as General Car Agent with office at Burlington.

Danville & Southwestern.—The officers of this company, successor to the Paris & Danville, are as follows: President, Charles Ridgley; General Manager, James A. Eads; Secretary, Treasurer and Auditor, Robert Popkess; General Freight and Ticket Agent and Master of Transportation, B. E. Matthias. The office of the President is at Springfield, Ill.; those of the other officers at Paris, Ill.

Eastern.—Mr. Daniel S. Wallis has been appointed Acting Master of Rolling Stock, to date from Oct. 1.

Ft. Madison & Northwestern.—This company was recently reorganized and the following directors chosen: J. C. Atlee, T. P. Bingham, Charles Doerr, Henry Ketchum, D. M. Kelly, S. P. Kendrick, E. Pitkin, George Schlopp. The board elected J. C. Atlee, President; Henry Ketchum, Vice-President; Charles Doerr, Secretary; S. P. Kendrick, Treasurer.

Indiana, Bloomington & Western.—Mr. Isaac D. Barton has been appointed Superintendent, in place of Gen. P. Pease, resigned. Mr. Barton was formerly Superintendent of the Long Island road; was then for a short time with the Atlantic & Great Western, then with the United States Rolling Stock Company, and has recently been Manager of the New York & Manhattan Beach road.

Jeffersonville, Madison & Indianapolis.—Mr. Wm. Swansten is to be Master Mechanic, in place of Reuben Wells, resigned. He has been Foreman and assistant under Mr. Wells for several years.

Joliet & Mendota.—The officers of this company, as recently chosen, are: President, Joseph S. Reynolds, Chicogo; Vice-President, C. C. P. Holden, Chicago; Secretary and Treasurer, David L. Holden, Matteson, Ill.; Assistant Secretary, Wallace B. Caswell, Joliet, Ill.; Attorney, C. C. Bonney, Chicago.

Kansas Pacific.—Mr. J. J. Dickey has been appointed Superintendent of Telegraph. He holds also the same position on the Union Pacific.

Louisville, Cincinnati & Lexington.—The following circular, from President J. B. Wilder, is dated Oct. 1:

"The duties of Purchasing Agent have this day been transferred to William Mahl, Auditor. His orders in reference to any matters pertaining thereto will be respected accordingly."

Nashville & Decatur.—At the annual meeting in Nashville, Tenn., Oct. 15, the following directors were chosen: J. W. Sloss, W. M. Duncan, John Orr, J. F. Wheless, A. H. Lusk, D. B. Cliffe, J. W. Baugh, John Frierson, L. Frierson, T. M. Jones, S. E. Rose, John Tanner, George Mason, George Houston, B. F. Carter. The road is leased to the Louisville & Nashville.

Norwich & New York Transportation Co.—At the annual meeting last week, the following directors were chosen: Moses Pierce, Norwich, Conn.; Oliver Woodworth, New London, Conn.; Gilbert W. Phillips, Putnam, Conn.; Francis H. Dewey, George W. Gill, Worcester Mass.; Wm. T. Hart, James H. Wilson, Boston; W. Bayard Cutting, Charles W. Copeland, New York. The board elected Moses Pierce, President; O. L. Johnson, Jr., Secretary and Treasurer.

Olean, Bradford & Warren.—At the annual meeting in Olean, N. Y., Oct. 18, the following directors were chosen: C. S. Cary, S. S. Jewett, G. B. Gates, W. H. Glenny, J. F. Schoelkopf, H. S. Morris, C. J. Hamlin. The board elected C. S. Cary President; G. B. Gates, Vice-President; F. S. Buell, Treasurer.

Pensacola & Selma.—Col. John T. Milner has been appointed Chief Engineer.

Union Pacific.—The jurisdiction of Mr. J. J. Dickey, Superintendent of Telegraph, is extended over all the roads and branches controlled and worked, including the Omaha & Republican Valley, the St. Joseph & Western, the Colorado Central and the Utah & Northern. Mr. Dickey has also been made Superintendent of Telegraph of the Kansas Pacific, as noted elsewhere.

Vermont & Canada.—At the annual meeting in Bellows Falls, Vt., Oct. 16, the following directors were chosen without opposition: Bradley Barlow, St. Albans, Vt.; Charles E. Billings, F. A. Brooks, J. D. Bryant, Wm. Mixter, Samuel Wells, Boston; Edward D. Mandell, New Bedford, Mass. The road is worked by the Central Vermont.

PERSONAL.

—Mr. Henry Harrison Farnum died in Port Jervis, N. Y., Oct. 14, aged 71 years. He began life as an engineer, his first service being on the survey of the Delaware & Hudson Canal under John B. Jervis, in 1826. He was afterward Assistant Engineer under Russell F. Lord, and for several years Chief Engineer of the canal. He had charge of the building of a section of the Black River Canal in New York, but in 1845 gave up engineering and went into business in Port Jervis, where he has been very successful. He leaves a large property.

—Rudolph P. Priester, Freight Agent at Mobile, Ala., for the Mobile & Montgomery road, disappeared suddenly last week, but was arrested a few days later in New Orleans and taken back to Mobile under charges of stealing some $10,000 from the company.

—Mr. James Murray Kay, Manager of the St. John & Maine Railway, was married in Bangor, Me., Oct. 15, to Miss Mary Freeland Prentiss, of that city. A very large company was present at the wedding.

—The friends of Mr. Leander Garey will be pleased to hear that he has so far recovered from his serious illness as to be able to leave his room, although not yet well enough to go out. Probably a month or more may yet elapse before he will be able to attend to business.

—The Savannah *News* thus speaks of the Georgia Railroad Commissioners: "Ex-Gov. James M. Smith is a lawyer of considerable ability and experience, and his career as legislator and Governor has enabled him to become quite familiar with public affairs in general and railroad matters in particular.

"Major Campbell Wallace is now a banker in Atlanta, but his life has been devoted to building and running railroads, and in his old age he ought to be abundantly able to render valuable service in the position to which he has been called, and in which his mature judgment and ripe experience will be largely depended upon by his associates in settling questions of tariff and rebate.

"Hon. Samuel Barnett, of Washington, is one of the most scholarly men in the state. * * He is a great reader and student of political economy, and to him the other commissioners will look for advice and counsel in settling the great questions of political economy that will frequently arise for consideration.

"The Board of Commissioners, therefore, may be said to have three important elements in its composition. Gov. Smith is the practical statesman to represent the common people. Major Wallace is the railroad man to represent that interest, and Mr. Barnett is the political economist to harmonize the above-named interests upon a basis of sound public policy."

—Gen. P. Pease has resigned his position as Superintendent of the Indiana, Bloomington & Western road, after several years' service.

TRAFFIC AND EARNINGS.

Grain Movement.

Receipts and shipments of grain of all kinds at the eight reporting Northwestern markets, and receipts at the seven Atlantic ports for the week ending Oct. 11, have been as follows for the past seven years, in bushels:

Year.	Northwestern receipts.	Northwestern shipments. Total.	By rail.	P. c by rail.	Atlantic receipts.
1873	4,885,946	5,443,210	738,908	19.1	3,980,203
1874	4,006,901	3,590,822	422,641	11.6	3,154,393
1875	4,986,513	3,999,015	1,145,256	28.6	3,817,656
1876	6,164,195	4,366,720	1,835,691	42.1	3,718,853
1877	5,519,469	5,386,512	1,030,797	19.1	5,742,997
1878	5,698,266	5,089,802	1,245,545	24.5	7,343,525
1879	7,671,299	6,841,999	1,817,672	26.6	7,894,566

The movement continues extraordinary. The receipts of the Northwestern markets have been exceeded but twice this year, and four times last year. The shipments of these markets have taken a sudden spring forward. They are 37 per cent. greater than in the preceding week and larger than in any other week of any year, though they were nearly approached in one week last year. The advance of rail rates announced for the following week doubtless stimulated this movement, but the proportion that went by rail was not very large, though the quantity was doubtless larger than ever before when rail rates were so high and navigation open. The receipts at Atlantic ports were considerably smaller than in the previous week, yet larger than in any other week of this year except one, and exceeded but once in any other year.

Of the Northwestern receipts, 47.1 per cent. was at Chicago, 14.7 at Milwaukee, 11.8 at Toledo, 9.9 at Detroit, 7.6 at St. Louis, 4.5 at Peoria, 2.4 at Duluth, and 2 per cent. at Cleveland. Detroit's receipts are extraordinary, St. Louis' the smallest for some time.

Of the receipts at Atlantic ports, 56.3 per cent. were a New York, 20.7 at Baltimore, 12.9 at Philadelphia, 5.3 at Boston, 4.5 at Montreal, 0.2 at New Orleans, and 0.1 per cent. at Portland. It is noticeable that Boston is not getting much more grain now, when the total Atlantic receipts are 7,000,000 to 8,000,000 a week, than it did in the winter and spring, when the receipts were 4,000,000 to 5,000,000. Its export traffic is in flour rather than wheat, and flour is not included above.

During the month of September last, the receipts of grain, including flour reduced to grain, at the four ports mentioned below were as follows:

	1879. Bushels.	1879. P. c. of total.	1878. Bushels.	1878. P. c.
New York	18,193,473	58.9	17,955,302	62.0
Baltimore	6,173,775	20.0	4,560,646	15.7
Philadelphia	3,503,427	11.3	3,924,295	13.5
Boston	3,022,732	9.8	2,537,726	8.8
The four	30,893,407	100.0	28,977,969	100.0

The increase since last year has been but 1.3 per cent. at New York, but was 35 per cent. at Baltimore, and nearly 20 per cent. at Baltimore, while there was a decrease of 10¾ per cent at Philadelphia.

For the week ending Oct. 21 (Tuesday), receipts and shipments at Chicago and Milwaukee were, in bushels:

	Receipts.	Shipments.
Chicago	3,600,961	3,667,260
Milwaukee	1,240,200	781,000
Total	4,841,161	4,448,260

Buffalo receipts were 3,871,285 bushels by lake and 812,600 by rail; shipments, 2,614,749 bushels by canal and 1,201,260 by rail.

For the same week, ending Oct. 21, the preceding week and the corresponding week last year, receipts at the four leading Atlantic ports were, in bushels:

	Week ending Oct. 21, 1879.	Week ending Oct. 14, 1879.	Week ending Oct. 22, 1878.
New York	4,418,390	4,565,173	3,399,999
Baltimore	1,461,384	1,866,470	611.157
Philadelphia	958,800	1,165,700	846,780
Boston	602,865	478,042	354,725
The four ports	7,441,439	8,075,385	5,212,661

New York receipts were 59.4 per cent. of the total for the week, against 56.5 per cent. for the preceding week and 63.3 per cent. for the corresponding week last year. Of the New York receipts for the week 1,629,892 bushels—36.9 per cent.—were by rail. All the ports show a gain over last year, and all but Boston a decrease from the preceding week.

Railroad Earnings.

Earnings for various periods are reported as follows:

	1879.	1878.	Inc. or Dec.	P.c.
Nine months ending Sept. 30:				
Cairo & St. Louis	$184,880	$169,969	I. $14,911	8.8
Chicago & West. Michigan	467,997	390,632	I. 77,365	19.8
Cleve., Mt. Vernon & Dela.	287,887	275,723	I. 12,164	4.4
Denver, S. Park & Pacific	495,419	.....	.....	....
Nash., Chatta. & St. Louis	1,271,021	1,188,031	I. 82,990	7.0
Net earnings	458,024	388,851	I. 69,773	17.9
Paducah & Elizabethtown	214,048	236,601	D. 22,553	9.5
Seven months ending July 31:				
New York, Lake Erie & Western	$8,938,625	$8,289,299	I. $649,326	7.8
Net earnings	2,170,492	2,284,450	D. 113,858	4.1
Three months ending Sept. 30:				
Wisconsin Valley	$66,282	$50,566	I. $15,716	31.1
Month of July:				
New York, Lake Erie & Western	$1,273,533	$1,157,691	I. $115,842	10.0
Net earnings	315,850	326,709	D. 10,859	3.3
Month of August:				
Grand Trunk	£145,515	£145,657	D. £142	0.1
Net earnings	52,630	50,814	I. 1,816	3.6
St. Louis & Southeastern	$76,756	$66,766	I. 9,990	15.0
Net earnings	36,542	24,999	I. 11,443	45.8
Month of September:				
Cairo & St. Louis	$28,681	$20,584	I. $8,097	39.3
Cleve., Mt. Vernon & Dela.	39,382	34,354	I. 5,028	14.6
Denver, S. Park & Pacific	95,532	.....	.....	....
Nash., Chatta. & St. Louis	157,303	123,497	I. 33,806	27.5
Paducah & Elizabethtown	29,934	28,061	I. 1,873	6.7
Wisconsin Valley	25,365	17,712	I. 7,653	43.2
Second week in October:				
Chi. & Eastern Illinois	$19,916	$18,627	I. $1,289	6.9
Chi., Mil. & St. Paul	278,000	190,896	I. 87,104	45.6
Chicago & N. W.	430,721	364,687	I. 66,034	18.1
St. L., Iron Mt. & So.	172,910	143,934	I. 28,976	20.1
Week ending Oct. 10:				
Great Western	$102,504	$97,856	I. $4,648	4.7
Week ending Oct. 11:				
Grand Trunk	$212,558	$202,804	I. $9,754	4.8

Petroleum.

Stowell's *Petroleum Reporter* gives the production of the Pennsylvania oil wells for September as follows, in barrels of 42 gallons:

	1879.	1878.	Increase.	P. c.
Production	1,853,700	1,315,810	540,890	41.4
Shipments	1,627,120	1,434,225	192,895	1.6
Stock, Sept. 30	7,620,725	4,599,362	3,021,363	65.8
No. of producing wells	11,760	10,012	1,748	17.4

Pittsburgh receipts of crude oil for September were 207,863 barrels, of which 156,722 came by pipe line, the rest by rail. Shipments of refined were 1,115 barrels west and 118,556 barrels east by Pennsylvania Railroad.

Coal Movement.

Coal tonnages for the week ending Oct. 11 were reported as follows:

	1879.	1878.	Increase.	P. c.
Anthracite	567,451	499,496	67,955	13.6
Semi-bituminous	49,677	.....	.....	....
Bituminous, Pennsylvania	40,516	.....	.....	....
Coke, Pennsylvania	28,379	.....	.....	....

Most of the Cumberland coal companies resume this week, paying the price of 50 cents per ton, which the miners asked.

The anthracite companies have generally advanced prices, and a further advance for next month is said to be agreed on, if possible.

The Philadelphia & Reading fixes freight and tolls from

Schuylkill Haven to New York Harbor on all coal going to New York or eastward at 46 per cent. of the selling price, except for pea coal, on which the rate is 70 per cent. On coal going beyond the Capes of the Delaware, or through the Delaware & Raritan Canal, freight and tolls from the mines will be 45 per cent. of net price at Port Richmond for lump and steamboat; 35 per cent. for egg, stove, and chestnut, and 65 per cent for pea coal.

The low water in the Ohio, caused by the long drought, has seriously embarrassed the Pittsburgh trade. There is said to be 18,000,000 bushels—720,000 tons—of coal at Pittsburgh and in the pools above, waiting for a rise, and every boat that can be had is full. Coal is scarce down the river, and some shipments are being made by rail.

Chicago-St. Louis Rates.

A dispatch from St. Louis, Oct. 21, says: "The general freight agents of the Chicago & Alton, Illinois Central, Wabash, Chicago, Burlington & Quincy, Chicago & Eastern Illinois, Vandalia, and Indianapolis & St. Louis railroads held a meeting here to-day to adjust freight rates between St. Louis and Chicago. After full discussion, the meeting agreed to rates on a basis of 40 cents for first class; flour, 30 cents; lumber and pig-iron, 11 cents, and cattle, hogs and sheep, $30 per single-deck car."

Ocean Freights at San Francisco.

A great pressure to ship wheat and a scarcity of tonnage in port have combined to send up ocean freight rates very rapidly at San Francisco. During the last two weeks they have gone up 50 per cent, and on Oct. 17, as much as 65s. per ton, about 41 cents per bushel for wheat, to Liverpool was asked, the highest rate for a long time. It is probable that this is only temporary, however, as many ships are on their way to San Francisco for cargoes, and more will be sent as the demand is reported.

Southwestern Association Rates.

Mr. Midgley's Circular No. 8 gives the following eastbound rates from Missouri River points, beginning Oct. 18:

Cents per 100 lbs:	To St. Louis and Miss. River points.	To Chicago.	To Milwaukee.	To Toledo.
1st class	60	65	....	115
2d "	45	60	....	90
3d "	30	45	....	70
4th "	20	26	28½	40
Wool, butter and eggs	42	50	....	....
Wheat	20	25	27½	31½
Corn, oats and barley	15	20	22½	26½
Cured meats	20	26	28½	33½
Dressed fresh meats:				
In refrigerator cars	31	46	48½	....
In common cars	28	41	43½	....
Dollars per car-load:				
Live stock, except hogs and sheep	$50	$62½	....	....
Hogs	40	47½	....	....
Sheep in single-deck cars	30	45	....	....
Hoop-poles and hay	30	40	....	....

Live Stock Exports.

The chief of the Bureau of Statistics reports the values of the exports of cattle and of all live animals during the past two fiscal years, ending with June, as follows:

	Year ending— 1879.	1878.	Increase.	P. c.
Cattle	$8,379,200	$3,896,818	$4,482,382	115.0
All live stock	11,487,754	5,844,653	5,643,101	96.6

During the last year 79 per cent. of the cattle and 71 per cent. of all the live animals exported went to Great Britain. The Chief of the Bureau adds:

"It is believed that the improvements which have been made, and are still in progress, for effecting the speedy transportation of cattle, and for securing their comfort and health both on railroad cars and on shipboard, will result in a large and constant increase of the exports of live animals.

"Under the present facilities for direct shipments on through bills of lading from the Northwestern States to Europe, the persons placed in charge of the cattle at the interior point of shipment in many instances accompany them throughout the entire journey to Liverpool, thus securing greater efficiency in the care of the animals."

Chicago Shipments.

For the week ending Oct. 18, shipments of freight eastward from Chicago amounted to 38,514 tons, against 32,397 tons the previous week, and were the largest since the pool was formed. The shipments by each route were:

	Flour, bbls.	Grain, tons.	Provisions, tons.	Total, tons.
Michigan Central	17,852	6,052	1,212	9,048
Lake Shore	14,175	4,537	1,650	7,605
Fort Wayne	12,040	3,802	2,014	7,020
Pan-Handle	1,805	3,640	2,060	5,881
Baltimore & Ohio	2,323	8,385	343	8,960
Total	48,195	26,415	7,279	38,514

The earnings from the shipments of this week must have been something like $32,000 from flour, $180,000 from grain, and $58,000 from provisions, and $38,000 more than the tariff of the previous week would have yielded.

The proportion carried by each route was 23.5 by the Michigan Central, 19.7 by the Lake Shore, 18.2 by the Fort Wayne, 15.3 by the Pan-Handle, and 23.3 by the Baltimore & Ohio. The immense grain shipments by the latter are remarkable, being much more than by any other route. It has more than made up for its deficiency heretofore and now immensely exceeds its proportion, which is smaller than that any other road. While other roads have to refuse freight for lack of cars, the Baltimore & Ohio at Chicago takes all that offers. It is said, however, that it does not take its proportion at some other points, apparently making a point of preferring the Chicago shipments.

The weekly shipments since the advance of the grain rate to 30 cents, Aug. 23, have been, in tons:

Week ending—	Tons.	Week ending—	Tons.
Aug. 30	33,308	Sept. 27	37,003
Sept. 6	27,449	Oct. 4	27,960
" 13	25,349	" 11	32,397
" 20	24,204	" 18	38,514

The last week, thus, shows the heaviest traffic.

THE SCRAP HEAP.

Railroad Equipment Notes.

It is stated that the Missouri Pacific has ordered six passenger engines from the Rogers Locomotive Works, and four heavy freight engines from the Baldwin Locomotive Works.

The Connellsville (Pa.) Car & Machine Works are running full time and have several orders for cars on hand.

The Danford Car Axle Co., of Chicago, has filed articles of incorporation in Illinois. The capital stock is to be $1,000,000. The incorporators are Ebenezer Danford, Edson Keith, E. G. Keith, Jas. L. Woodward, Chas. W. Smith and Geo. P. Jones.

The Ohio Falls Car Co., at Jeffersonville, Ind., has recently shipped several passenger cars to the Burlington & Missouri River in Nebraska, and narrow-gauge cars to the St. Joseph & Des Moines and the Caledonia, Mississippi & Western.

The Ashton blow-back safety-valve, which, it is claimed, is noiseless in its operations, has been adopted by the Fitchburg, the New York & New England and the Boston, Revere Beach & Lynn roads.

A St. Louis dispatch says that contracts have been given out by the consolidated Wabash, St. Louis & Pacific Company for 30 locomotive, 15 passenger cars, 500 stock, 400 coal and 2,200 box cars, all to be delivered before March 1 next.

The Barney & Smith Manufacturing Co., at Dayton, O., is building 160 box cars for the Indianapolis, Decatur & Springfield road.

The Litchfield (Ill.) Car Co., is building 50 flat cars for the Indianapolis, Decatur & Springfield road.

The pay car on the Chicago, Burlington & Quincy has just been furnished with 42-in. paper car wheels, which is their first introduction on this road.

Iron and Manufacturing Notes.

Oswego Furnace, in Clackamas County, Oregon, is in full blast. It is a charcoal furnace, and the only blast furnace on the Pacific coast.

Swift's Iron and Steel Works, Cincinnati, are running full double turn in all departments. They are shipping 175 tons of rails and bar iron, and 50 tons of pig iron per day.

The Columbus (O.) Rolling Mill is at work on an order for iron rails for the La Fayette, Bloomington & Muncie road.

The Burrell-Johnson Iron Co., at Yarmouth, N. S., is making a number of frogs and sets of switch-irons for the Western Counties Railway.

The James River Steel Manufacturing & Mining Co. has been organized in Amherst County, Va., by Philadelphia parties. Ex-Governor John F. Hartranft, of Pennsylvania, is President, and J. P. Richeson, Secretary and Treasurer.

Bridge Notes.

The new market-house at Georgetown, British Guiana, for which the Edge Moor Iron Co. is to furnish the iron, is to be 255 by 275 ft. in size. The building is designed and the plans made by Wilson Brothers & Co., engineers and architects, of Philadelphia.

Jones, Benner & Gibson, of Philadelphia, have the contract for building an elevator of 1,500,000 bushels capacity for the Pennsylvania Railroad, at Harsimus Cove, Jersey City.

The Edge Moor Iron Works are at Edge Moor on the Delaware River, between Chester, Pa., and New Castle, Del. At this point there is deep water close along shore. The company's post-office address, however, is at Wilmington, Del.

The Atlanta (Ga.) Bridge Works of Wilkins, Post & Co. are building six spans, of 100 ft. each, over the Chattahoochie River, for the Western & Atlantic road, and one span of 80 ft. for the Greenville & Columbia road. They have just completed five deck spans, of 120 ft. each, over the Etowah River on the Western & Atlantic.

The Clinton (Ia.) Bridge Co. is building a combination truss bridge with one span of 180 ft., one of 60 ft., and one of 45 ft., over Red Lake River at Crookston, Minn.

The Toronto (Ont.) Wrought Iron Bridge Co. is building a bridge of five spans, 125 ft. each, on the Credit Valley road, and a highway bridge with one span of 125 ft. and two of 25 ft. each, at Sherbrooke, Quebec.

A Curious Accident.

A dispatch from Phillipsburg, N. J., Oct. 15, says: "A singular accident occurred at the round-house yard of the New Jersey Central Railroad this morning. A new engine was standing near the turn-table, which was adjusted to receive another engine. The fireman of the new locomotive was engaged in shining the brass work, and was stepping into the cab window when his body struck the throttle, throwing it wide open. In an instant the engine was off under full head of steam. The driving-wheels made two revolutions, and then the ponderous machine dashed into the open pit of the turn-table. The fireman shut off steam almost immediately, but the work had already been done and the engine was a wreck at the bottom of the pit, the table was ruined and a loss of $5,000 or more occasioned. There are four freight engines and two passenger engines imprisoned in the round-house. The fireman was uninjured, but has been discharged. The engineer will also probably lose his place for leaving the engine standing in that position.

A Handsome Parlor Car.

A Lucas parlor car, built at Wilmington, Del., for the Woodruff Sleeping & Palace Car Co., and intended to run between Savannah and Jacksonville, recently passed through Baltimore on its way south, and is thus described by the Baltimore *American:* "The interior arrangements are those which attract particular attention, as even a hasty inspection develops the fact that, while all the appointments are of the most elegant description, those for the comfort and convenience of the passenger have received the first consideration. At each end of the car are found toilet and retiring rooms for ladies and gents, and also accommodation for the porter. A new arrangement in this connection is the system of electric call apparatus for this latter individual, which connects with each seat or berth, similar to that of a first-class hotel. The seats, with nickel-plate trimmings, are upholstered in green and scarlet plush velvets, and are very handsome. The wood-work of the interior is of walnut, the panels of French walnut; and the sleeping berths, when closed, represent an elegant series of panel-work. Toilet apartments are furnished with every convenience, the washstands being marble-topped, and above, an elegant French plate mirror. The several apartments into which the car is divided at night are arranged by a series of elegant curtains or draperies of green and gold cloth. Add to this, elegant lights swung in nickel-plate trimmings, and the entire interior carpeted in fine style, it makes, on the whole, as complete comfort and elegance as can be wished by any traveler. The exterior of the car is beautifully painted in maroon ground, striped in green, blue and gold, and is supplied with the Westinghouse brake and all modern improvements."

Paper Car Wheels in Court.

In the United States Circuit Court, before Judges McKennan and Butler, the trial of the case of George W. Halloway and wife against the Pullman Palace Car Company was resumed. The plaintiffs sought to recover damages for the death of their son, caused by an accident on one of the Pullman cars on the night of Nov. 1, 1876, on the Niagara express train. The accident was caused by the breaking of one of the wheels under the forward truck of the palace car Woodbine, several persons being killed and many wounded. The broken wheel, as well as all the wheels of the palace car on that train, was made of paper, and the plaintiffs contended that the wheels made of that material were unfit for use, and not as good as first-class chilled iron wheels, and that the use of such paper wheels was such gross negligence on the part of the Pullman Palace Car Company as made the latter liable for damages. The plaintiff called a large number of engineers and experts, who testified that, in their opinion, paper wheels were not fit for use, and that it was unsafe to place them under the company's cars, and that only wheels solidly cast were safe. Upon cross-examination of these experts, however, by P. T. Ransford and Christian Kneass, Esq., for the Pullman Palace Car Company, it turned out that the experts either knew nothing of the construction, manufacture or qualities of the paper wheels, or else were interested in the manufacture and use of iron wheels, which latter class, it is alleged, are being rapidly replaced by paper wheels. Numerous models of the paper wheels were exhibited to the jury by Messrs. Kneass and Ransford, and they contended that they were not only more safe and durable than the best iron wheels, but were far more expensive, and one of them would last as long as ten of the other kind. It was sought to be established that iron wheels were liable to break at any moment, were subject to contraction and expansion by the action of cold and heat, and were not strong enough for the heavy Pullman cars; but that the paper wheels were not liable to be affected by either heat or cold, were capable of sustaining any weight, supported the cars without jarring, and were practically indestructible. It was also shown that the North Pennsylvania Railroad Company had agreed to keep the cars in good order and repair. The case excited a great deal of interest among members of the bar, railroad men and mechanical engineers on account of the important and novel questions involved. It is stated that a verdict which would condemn the wheels would involve a loss of over a million dollars to the Pullman Company alone (!). After the plaintiffs had closed their evidence, Messrs. Kneass and Ransford moved for a judgment of non-suit on the ground that the plaintiffs had failed to make out their case, and that their testimony did not show any liability whatever on the part of the Pullman Company. After argument by the counsel, the Court granted the non-suit, sustaining the defendant's view of the case.—*Philadelphia Times, Oct.* 17.

Big Car Loads.

A correspondent calls attention to the following item from a paper published on the line of the Midland Railway of Canada: "The 6:25 train south last evening, comprising 11 cars, was packed with returning excursionists, who had passed the day in Peterborough visiting the exhibition. It is entertained that there were 12,000 on board." Our correspondent adds: "So much for a local reporter's judgment of what a car will hold."

We should think so! That is an average of 1,091 people to a car. Passenger cars in Canada must be pretty large. But perhaps an extra 0 slipped in somehow.

Look Out for Him.

Mr. C. J. Ives, Superintendent of the Burlington, Cedar Rapids & Northern road, issues the following circular, addressed especially to superintendents of Southern roads:

"A person calling himself J. R. Bailey is traveling in the South, and has provided himself with a counterfeit of the letter-heads used in my office and also office stamp, and will doubtless attempt to impose on railway officials by their use. I need hardly add, he is an impostor and entitled to no credit whatever on account of this railway. He is described as being 5 ft. 10 in. in height, sandy hair, moustache and goatee. Look out for him."

An Old and Faithful Employe.

Capt. Richard Smith, one of the oldest railroad men in the country, who has been in the employ of the Philadelphia, Wilmington & Baltimore Company since the road was built, has been relieved from active duty on account of extreme age and sickness. Capt. Smith ran his first passenger train over the road 42 years ago and for 25 years was conductor on passenger and freight trains. Lately he has been in charge of the night freight department. He is now 82 years old and lives on Eden street, near Bank.—*Baltimore Gazette.*

Be Careful with the Torpedoes.

George Daley had a railroad torpedo in the watch-pocket of his vest. He was foreman of the carpenters engaged in rebuilding snow sheds near Cisco. Last Thursday he was pressing hard against a timber, when the torpedo exploded, tearing a hole through his ribs. Dr. Curless, of Truckee, who was called to attend him, says he never witnessed such agony in his life as that which Daley suffered from the accident. The wounded man is now in the hospital at Sacramento. There is little hope of his recovery. All must feel sorry for the poor fellow. But every man who has occasion to handle torpedoes and giant powder caps should learn from Daley's fate to keep such explosives out of his pockets.—*Reno (Nev.) Gazette, Oct.* 4.

OLD AND NEW ROADS.

Atlantic & Great Western.—A London telegram of Oct. 22 reports that this company's securities are rising, on the strength of the report that the road is to be sold or leased to the New York Central.

Beersheba Springs.—Surveys have been made for a narrow-guage road from Tracy City, Tenn., north by east to Beersheba Springs in Grundy County, a distance of 18 miles. The Tennessee Coal & Railroad Company, the terminus of whose road is at Tracy City, will, it is said, give substantial aid to the new project.

Boston, Hoosac Tunnel & Western.—The track of this road is now complete from the Massachusetts state line across the southwest corner of Vermont to Eagle Bridge, N. Y., a distance of 17 miles.

A very prompt and sharp piece of work was done on this road a few Sundays ago. The long legal contest in regard to the four crossings of the Troy & Boston and Troy & Bennington tracks by this road was lately decided in favor of the Boston, Hoosac Tunnel & Western Company. Three of these crossings are under-crossings, the fourth a grade crossing of four curved tracks, this curve causing the 16 frogs necessary for the crossing to be at different angles. The entire crossing of 16 frogs and 22 rails was ordered from the Pennsylvania Steel Works and promptly made and shipped, but the car containing it did not appear when wanted, nor was its whereabouts known. In fact it did not reach the Boston, Hoosac Tunnel & Western track until half-past nine on a Saturday evening. The load—seven tons—was at once loaded on wagons and hauled seven miles over a rough road, and between Sunday and Monday mornings the entire crossing was laid, not detaining in the least the traffic on the Troy & Boston road. Every piece in the crossing fitted accurately in its place.

On the same day and night, at two of the under-crossings some miles apart, all the piles for temporary work, the driving of which would obstruct traffic, were driven, and no detention whatever was experienced by Troy & Boston trains. Mr. Robert L. Harris was the Engineer in charge of this work, and E. M. Leuffer Division Engineer; we are informed that every one connected with the road worked with a will, and did his full share. The work was distributed over a distance of some six miles.

Buffalo & New York Pipe Line.—In the New York Supreme Court, General Term, at Rochester, Oct. 17, argument was heard in the matter of the appeal of the Atlantic & Great Western and the New York, Lake Erie & Western from an order confirming a referee's report in favor of the

condemnation of certain lands owned by those companies for the use of the Buffalo & New York Pipe Line Company. Counsel for the petitioner and respondent, the pipe line company, argued that that company was organized under the laws of the state passed in 1878; that it had already duly complied with the requirements of those laws, and that it intended in good faith to construct a line of pipes from Carrollton, Cattaraugus County, to Dayton, in the same county; that it required the real estate of the contestant as described in its petition, for the purposes of its incorporation—for the construction and operation of said line of pipes; that the contestant refused to sell the same, and the pipe line company then asked that commissioners be appointed to appraise the lands, etc.

On the other hand, the contestants in their answer denied that the petitioner was duly organized under the laws of 1878, and alleged that the petitioner (the Pipe Line Company) was an organization formed solely for private purposes and uses, and not for a public use; that the petitioner required the land described, for the purpose of constructing and operating thereon a line of pipe for the sole transportation of crude petroleum oils which were owned by a class of producers, refiners and speculators; that when this land is acquired it cannot be used by the public, but will be enjoyed solely and entirely by private persons or corporations for their own use and benefit; that the petitioner has no power, either by virtue of said laws or otherwise, to acquire title to the land in question, without consent of the contestant, and that the act of 1878, so far as it assumes to confer such power by the right of eminent domain, is unconstitutional and void.

Burlington, Cedar Rapids & Northern.—In the United States Circuit Court in Des Moines, Ia., Oct. 18, a bill was filed by J. N. Tappen, Trustee of the former firm of Henry Clews & Co., to set aside the decree of foreclosure under which the Burlington, Cedar Rapids & Minnesota road was sold and transferred to the present company, on the alleged ground that the estate under his charge was defrauded of some $400,000 by the proceedings in the case.

Canadian Pacific.—Sealed proposals will be received by F. Braun, Secretary of the Department of Railways and Canals of the Dominion of Canada, at Ottawa, Canada, until Nov. 17, for the construction of part of this line in British Columbia. The work to be let extends from near Yale to Lake Kamloops, and is in four sections, as follows: Emory's Bar to Boston Bar, 29 miles; Boston Bar to Lytton, 29 miles; Lytton to Junction Flat, 28¼ miles; Junction Flat to Savona's Ferry, 40¼ miles. Specifications, bills of quantities, conditions of contract, forms of tender and all printed information may be obtained on application at the Pacific Railway office in New Westminster, British Columbia, and at the office of the Engineer-in-Chief at Ottawa. Plans and profiles will be open for inspection at the latter office. No tender will be entertained unless on one of the printed forms and all the conditions are complied with.

Central Branch, Union Pacific.—This company is not only extending its lines west through the Solomon Valley, but is also arranging for several branches. The Scandia Branch is to be extended northward into Nebraska. A new branch is to be built from Clyde, Kan., south to Lincoln, reaching into territory heretofore tributary to the Kansas Pacific. Work on the Jewell County Branch is to be pushed forward to Burr Oak as soon as possible.

Chicago & Strawn.—Work is reported actively in progress on this road, which is to complete the Wabash branch to Chicago. It will be 95 miles long, and a large part of the grading is already done.

Clinton & Shousetown.—This company has been organized to build a road from Shousetown, Pa., on the Ohio River, up Flaherty's Run to Clinton, to reach some coal mines. It will be about seven miles long.

Colorado Central.—It is stated that a third rail, of 3-ft. gauge, is to be laid from Golden, Col., to Denver, 14 miles, so that the trains and cars from the narrow-gauge division can be run through to Denver without transfer of freight or passengers.

The stock ($100,000) held by Gilpin and Jefferson counties, has been sold to Jay Gould and associates for $25,000.

Columbus, Chicago & Indiana Central.—In Indianapolis, Oct. 17, the petition of James A. Roosevelt and Wm. A. Fosdick, trustees and receivers, was heard in the United States Circuit Court, and an order granted authorizing petitioners to pay off and discharge $666,500 Indiana Central second-mortgage 10 per cent. bonds, on and after Jan. 1 next.

Dayton & Southeastern.—Track has been laid on the extension of 11 miles from the late terminus at Musselman, O., east by south to Chillicothe, making the road 81 miles long, from Dayton to Chillicothe. Work is in progress on a further extension from Chillicothe southeast to a point in the Jackson County coal-field, a distance of about 30 miles.

Ft. Madison & Northwestern.—This road, which is finished from Ft. Madison, Ia., west 10 miles, and graded for some distance further, has been sold to Henry Ketchum and others, who agree to push it forward, and are said to have considerable capital.

Georgia.—It is stated that the operations of this road for the six months ending Sept. 30 show an increase in gross earnings of $36,000, or 10.9 per cent., and an increase in net earnings of $12,000, or 24 per cent. The figures for this half-year, in round numbers, were: Gross earnings, $366,000; expenses, $304,000; net earnings, $62,000. All extraordinary expenses have been met and included in expenses, and a large amount paid out for steel rails and for a new grain elevator.

Great Western.—A cable dispatch from London says: "The Great Western Railway's half-yearly report has been issued. The half-year's net revenue exhibits a deficiency of over £10,000 sterling. The credit balance from the previous half-year reduces this to £6,000, which forms a charge against future revenue. A dividend on the preference stock was also carried forward to the debit of the next half-year. The directors look hopefully on the prospects of the current six months."

Joliet & Mendota.—At the recent annual meeting of this company, it was stated that the right of way had been secured for 45 miles of the 54 from Joliet, Ill., west to Mendota, and as soon as the right over the remaining nine miles was obtained, work would be begun on the grading.

Kansas Central.—In 1871, the county of Leavenworth, Kan., voted to give this company $250,000 Kansas Pacific stock, owned by the county, as a bonus in aid of the road. Subsequently a lawsuit was begun to prevent the transfer of the stock, in which the county took part. At a recent meeting of the County Commissioners it was voted to withdraw from the suit, to cease all opposition to the transfer, and to urge that it be made at once.

Kansas City, Ft. Scott & Gulf.—This company has just completed and opened for business a branch line from Baxter Springs, Kan., its southern terminus, eastward through Short Creek to Joplin, Mo. The new branch is 15½ miles long, and is built to reach the lead mining region about Joplin, and to secure a share of its trade, from which this road had been cut off by the sale of the Missouri & Western and the Joplin roads to the St. Louis & San Francisco Company.

Lake Champlain & Moriah.—This short road is just now pretty fully employed. About 2,000 tons of iron-ore a day are brought down for shipment from the wharves on Lake Champlain, and as many trains are run as the company can provide.

Little Falls & Dakota.—A preliminary survey has been completed from Little Falls, Minn., to Brown's Valley in Traverse County, 130 miles. The line is reported generally favorable, with only a few places where heavy work will be needed. The final location from Little Falls to Morris, 90 miles, is to be made at once.

Louisville & Nashville.—Local papers report that this company is making some surveys for a line from Pulaski, Tenn., eastward by Fayetteville to Chattanooga. If true, this a matter of some importance.

Memphis & Charleston. — This company issues the following circular to connecting roads:

"On and after Oct. 15 resume the sale of tickets and checking of baggage (through and local) to all points on, and reached *via*, this road, with the following exceptions:

"Do not sell tickets or check baggage to Buntyn or Memphis unless passengers hold a permit issued by John Johnson, Superintendent of Quarantine, permitting them to go to those points.

"Do not sell tickets or check baggage *via* Memphis to any point west of the Mississippi River.

"Passengers east-bound, going to or passing through Grand Junction, Corinth, Decatur, Stevenson or Chattanooga, will be required by health officers to give satisfactory evidence that they have not been in an infected place or district within the past twenty days.

"Moscow is still the western terminus for passenger trains, but a passenger coach is now attached to freight trains between Moscow and Transfer Station (5½ miles distant from Memphis), which runs in connection with passenger trains east and west."

Michigan Central.—The jury summoned by the Coroner to consider the case of the persons killed in the Jackson collision, after hearing a large amount of testimony, rendered the following verdict on Oct. 17:

"The said persons were instantly killed on the morning of the 10th day of October, 1879, between 7 and 10 minutes after 1 o'clock, on the main track of the Michigan Central Railroad, in the town of Summit, a short distance east of the eastern limits of the city of Jackson, by a violent collision between the western bound Pacific express train known as No. 2, on which there were passengers or employés, and a switch train, consisting of an engine and tender, a way car and nine loaded freight cars. That at the instant of collision the Pacific express train had a clear right to the track and was running at the usual rate of speed of that train under similar circumstances.

"That under the rules and orders of this railroad company the switch train had no right to be upon the track at the time, and that it was placed there by the order of Evander T. Colwell, the yard-master, at Jackson Junction, in charge of the road; that said Evander T. Colwell was criminally negligent of his duty in so ordering the switch train upon the main track at a time when the Pacific express was liable to arrive within 10 minutes, as he had ample time of ascertaining, and that if he was deceived as to time, it was by his own miscalculation or want of calculation.

"That Joseph Sawyer, switchman in charge of the engine, knowing that Colwell had made mistakes on previous occasions, is censurable for permitting his engine to go upon the main track in the face of admitted danger without decided protest.

"That Robert R. Jones, engineer of the switch engine, is censurable for moving his engine upon the main track when he knew, by examination of his own watch, that he could not do so without violating the rules and orders of the company.

"That it is quite possible that the engineer on the Pacific express saw the white light on the east switch, indicating a clear track, just before the red light was displayed, and that he did not see the latter until too late to avoid a collision, if, indeed, it could have been prevented had he seen the red light the instant it was shown.

"And the jurors further say that the amount of switch-work in this yard is large and constantly increasing, and renders is a very important point to the safety of the traveling dublic as well as the railway employés. The existing difficulties in the way of incoming trains from the east obtaining early and reliable notice of danger there by reason of the curve in the approaching track, the deep cut in the road-bed, which is liable to be filled with fog and the yard-smoke to obscure the view, are shown both by the evidence and the recent calamity.

"We suggest, on the evidence before us, the propriety of providing additional safeguards and danger-signals, and the necessity of establishing such signals at a point further eastward than those now in use, especially in view of the high rate of speed invited and required by the company in passing stations at which no stop is made."

Missouri, Kansas & Texas.—The New York *Tribune* of Oct. 23 gives currency to rumors concerning this road as follows:

"The negotiations which have been pending for several months for the reorganization of the Missouri, Kansas & Texas Railroad have been thus far unsuccessful. The road has been operated since July 1, 1876, by the Union Trust Company in behalf of the bondholders. A consequence of the proposed reorganization would be the leasing of the road to the Chicago, Burlington & Quincy Railroad, which connects with it at Hannibal, Mo. Of the $14,752,000 first mortgage bonds, a company of Dutch bankers controls about $6,000,000. A member of the Purchasing Committee of the bondholders is still in Europe, where he went to seek the consent of the Dutch bankers. His mission has failed, but an offer has been made by the foreign bondholders to accept new bonds bearing 5 per cent. interest, provided they shall be guaranteed by the Chicago, Burlington & Quincy Company. The interest offered in the scheme of reorganization was 4 per cent. without additional security. The limitation of time for this offer, it is understood, will expire this week, and strong efforts have been made to secure the assent of a sufficient number of bondholders here to render certain the accomplishment of the plan.

"The consolidated Wabash Company, it is said, has made to the American bondholders a more favorable proposal. The rumor was denied in part by the officers of the company, but it is understood on excellent authority that the company has proposed to pay 6 per cent. interest on the first mortgage. If the offer of the Dutch bondholders should be accepted within the stipulated time, some of the American bondholders will begin, it is said, foreclosure proceedings in order to reap the fruits of the more profitable proposition of the Wabash Company."

Montgomery & Troy.—An offer has been made to grade this projected road from Montgomery, Ala., southeast to Troy, about 50 miles, at the engineer's estimate, stock to be taken for one-half the amount.

Nashville, Chattanooga & St. Louis.—The following statement is for the three months ending Sept. 30, the first quarter of the company's fiscal year:

	1879.	1878.	Inc. or Dec.	P. c.
Passage	$102,365 09	$104,013.83	D. $1,648.14	1.6
Freight	315,606.93	247,206 43	I. 68,400.50	27.7
Mails, etc	15,103.14	14,778.79	I. 324.35	2.2
Total	$433,135.76	$366,059.95	I. $67,076.71	18.3
Expenses	264,856.47	248,814.04	I. 16,042.43	6.4
Net earnings	$168,279.29	$117,245.01	I. $51,034.28	43.5
Per cent. of exps	61.17	67.98	D. 6.81	10.0

For the month of September the gross earnings were $157,363.38; expenses, $84,470.04; net earnings, $72,893.34. Taxes, interest and proportion of dividend for the month amounted to $55,030.10, leaving a net surplus of $17,863.24 for the month.

This company last week took formal possession of the Duck River Valley road, from Columbia, Tenn., to Petersburg, 34 miles, under the lease lately made. The road will be extended from Petersburg to Fayetteville, 10 miles, as soon as possible.

The people of Smith County, Tenn., are urging upon this company the necessity for an extension of its Tennessee & Pacific Branch from Lebanon east. It will probably be built some 20 miles out, if a reasonable sum can be raised along the line

New York, Lake Erie & Western.—The following statement comes, as usual, from London, and is for the month of September:

	1879.	1878.	Inc. or Dec.	P.c.
Gross earnings	$1,273,532.75	$1,157,690.87	I. $115,841.88	10.0
Expenses	957,683.03	830,981.44	I. 126,701.59	15.2
Net earnings	$315,849.72	$326,709.43	D. $10,859.71	3.3

The net earnings for the ten months of the fiscal year to July 30, compared with the same period last year, show a decrease of $344,629.80.

New York & New England.—This company will receive at the Treasurer's office, No. 224 Federal street, Boston, until Oct. 31, proposals for all or any part of $1,250,000 new 7 per cent. first mortgage bonds, issued to pay for the extension from Waterbury, Conn., to Brewsters, N. Y. The money is to be paid in ten installments of 10 per cent. each, and no two installments will be called for in the same month. Installments paid will bear interest from date of payment. The bonds will be issued as fast as sections of 10 miles are completed, or work equivalent thereto done to the satisfaction of the company's Engineer.

New York & Oswego Midland.—Bondholders who have assented to the plan of reorganization are notified that they can subscribe *pro rata* to their holdings to the sum of $320,000, for the purpose of paying off the outstanding Receiver's debt. Each $1,000 bond entitles the holder to pay $40 in cash, and in the event of the purchase of the road by the Committee he will receive $40 of preferred stock and $150 of the common stock of the new company. The money paid will be returned if the purchase is not made by the Committee on return of the receipt issued therefor.

Bondholders and holders of Receiver's debt (assented) are also notified that their subscriptions to first mortgage bonds must be paid on or before Nov. 10 to C. N. Jordan, Chairman, at No. 20 Nassau street, New York.

Ohio & Mississippi.—The Springfield Division bondholders have begun suit to foreclose their mortgage. Concerning this suit a Springfield (Ill.) dispatch of Oct. 16 says:

"A voluminous bill was filed by the Bloodgood party in the United States Circuit Court here to-day in the name of the Farmers' Loan & Trust Company, of New York, against the Ohio & Mississippi Railroad Company, Robert Garrett & Sons, of Baltimore, the Baltimore & Ohio Railroad Company, and Daniel Torrance and Sophia J. Torrance. The bill first sets forth the making by the Ohio & Mississippi on Jan. 30, 1875, of a mortgage covering all its property in Illinois, being the Springfield Division, said mortgage constituting a first lien upon the said property, and being given to secure 300 bonds of $10,000 each. Complainant states that but 200 of these bonds were issued. These were exchanged subsequently for coupon bonds of $1,000 each, amounting to $2,000,000 in the aggregate, which are outstanding and unpaid. There is now over $280,000 in defaulted interest due on these bonds. There are other large claims against the Ohio & Mississippi held by the Baltimore & Ohio interest which are not yet due. The bill concludes by stating that the holders of the Springfield Division bonds claim that they are, in equity, entitled to have said purchase money bonds adjudged to be entitled to be paid in full out of said mortgaged property before any of the proceeds shall be distributed to holders of said hypothecated bonds, and that the creditors holding said hypothecated bonds ought to resort to the general property of the road which is adequate to satisfy these debts. Complainant, therefore, prays that defendants be enjoined from disposing of any of the bonds held by them, and that a separate receiver be appointed for the Springfield Division, the bond creditors believing that in this way such division would yield a much larger revenue, and that the Springfield Division may be sold to satisfy the mortgage. No order has yet been entered in the case."

Old Colony.—This company has made a contract with the Union Electric Signal Company to equip several miles of its track near Somerset, Mass., with automatic safety signals.

The company has recently sold a large lot of iron rails, chiefly taken up from the Cape Cod Division, at $36 per ton, realizing a considerable profit by holding them for a time.

Paris & Danville.—The following circular is dated Oct. 8: "Notice is hereby given, that the Danville & Southwestern Railroad Company has acquired by purchase the Paris & Danville Railroad and its equipments, and will hereafter operate the same. All accounts pertaining to the business of the Paris & Danville Railroad while operated by the Receiver, prior to Oct. 8, 1879, will be settled by the Receiver of that company, and all accounts pertaining to the business of said railroad after Oct. 7, 1879, will be settled by the Danville & Southwestern Railroad Company. Officers and agents of other railroads will please address their reports and communications accordingly."

The road was lately sold under foreclosure of mortgage; it is in operation from Paris, Ill., to Lawrenceville, 103 miles.

Pensacola & Selma.—Surveys are being made already for the extension of this road from Pineapple, Ala., to a junction with the Pensacola Railroad. It is said that the new owner of the road, Mr. D. F. Sullivan, of Pensacola, is resolved to push the road through. Bids will soon be called for the Alabama River bridge, and for other work.

Petersburg.—In the United States Circuit Court at Richmond, Va., Oct. 18, an order was entered directing the Receiver to pay, on Nov. 15, the coupons due Jan. 1, 1878, on

NEW JERSEY MINOR RAILROADS IN 1878.

NAME OF ROAD	Miles of road worked	Liabilities. Stock	Bonds	Other debt	Traffic. Train mileage	Passengers carried	Tons freight carried	Earnings. Gross earnings	Expenses	Net earnings	Gross earnings per mile	Net earnings per mile	Per cent. of expenses	Interest and rentals	Dividends
Blairstown	11.3	$117,110	.....	$52,000	14,700	.....	.....	$5,435	$4,431	$1,004	$481	$89	82	.....	.....
Camden, Gloucester & Mt. Ephraim	6.0	64,500	$62,100	.....	.....	.....	.....	15,138	20,514	*5,376	2,523	.....	136	.....	.....
Charlotteburg & Green Lake	4.5	100,000	.....	.....	.....	.....	.....	3,873	3,549	324	861	72	92	.....	.....
Ferro Monte	2.5	30,000	.....	6,500	.....	.....	.....	11,861	8,353	3,508	4,744	1,403	70	.....	$3,300
Freehold & Jamesburg	27.7	283,745	.....	.....	.....	.....	.....	51,304	49,136	2,168	1,852	78	96	.....	.....
Freehold & New York	12.6	200,000	100,000	4,107	.....	.....	.....	27,836	27,915	*79	2,209	.....	100	.....	.....
Hibernia Mine	5.3	150,000	.....	.....	.....	.....	83,131	29,488	12,871	16,617	5,564	3,135	44	.....	9,000
Montclair & Greenwood Lake†	41.0	.....	.....	.....	.....	.....	.....	149,301	148,308	993	3,641	24	99	.....	.....
Mt. Hope Mineral	4.3	160,000	.....	.....	.....	.....	.....	23,383	13,003	10,380	5,438	2,414	56	.....	.....
New Jersey & New York†	36.5	1,187,408	1,034,500	416,814	.....	.....	.....	159,251	153,729	5,522	4,363	151	98	.....	.....
New Jersey Southern†	157.3	.....	.....	.....	.....	299,033	58,318	344,920	324,669	20,251	2,193	129	94	.....	.....
Northern	25.5	1,000,000	400,000	.....	.....	.....	.....	234,720	182,700	52,020	9,205	2,040	78	$28,000	25,000
Ogden Mine	10.0	450,000	.....	.....	.....	.....	48,473	18,194	10,747	7,447	1,819	745	59	.....	.....
Sussex	34.0	1,638,600	236,500	.....	104,230	.....	.....	102,017	72,103	29,914	3,001	874	71	16,555	.....
Tuckerton	31.0	237,924	408,000	135,566	.....	.....	.....	24,262	23,895	367	783	12	98	.....	.....
Warren	19.0	1,800,000	1,350,000	12,347	.....	.....	.....	303,412	120,274	183,138	15,969	9,639	40	94,500	126,000
Williamstown	9.5	30,000	250,000	.....	.....	.....	.....	10,683	10,597	86	1,125	9	100	.....	.....

* Deficit. † Receiver's report.

The above figures are from the reports made to the State Comptroller of New Jersey for the year 1878, and include all roads whose reports are not otherwise presented. The reports are required chiefly for the purpose of fixing the valuation of the roads for taxation, and the law does not call for statements of traffic.

The Freehold & Jamesburg includes the Squankum & Freehold, 7.6 miles, and the Farmingdale & Squan Village, 8.6 miles, controlled and worked.

The Montclair & Greenwood Lake is the Receiver's statement, covering the period of the receivership, from Oct. 4, 1877, to Nov. 22, 1878, when it was delivered to the New York & Greenwood Lake Company.

The Warren road is leased to the Delaware, Lackawanna & Western.

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the first-mortgage bonds, with interest from date of maturity until Nov. 15.

Pennsylvania.—This company's statement shows for the month of September, as compared with September, 1878, for all lines east of Pittsburgh and Erie :

An increase in gross earnings of	$477,882
An increase in expenses of	289,440
Net increase	$188,442

For the nine months ending Sept. 30, as compared with the same period in 1878, the same lines show :

An increase in gross earnings of	$1,696,294
An increase in expenses of	1,289,196
Net increase	$407,098

All lines west of Pittsbugh and Erie for the nine months show a surplus over all charges of $495,277, being a gain of $489,560 over the corresponding period last year.

A dispatch from Philadelphia, Oct. 22, says : "Robert Arthur, a stockholder of the Pennsylvania Railroad Co., to-day filed a bill in equity asking that that company be enjoined from constructing the proposed elevated railroad on Filbert street, and erecting a bridge over the Schuylkill River to connect the elevated road with the main line. Mr. Arthur asks the injunction on the ground, as he claims, that the company has no authority under the constitution to construct such a road, and that it will lead to numerous claims and suits, will require the expenditure of a large sum of money, and subject the company to the liability of a forfeiture of its charter."

Philadelphia & Reading.—The Philadelphia *Ledger* reports : "We have authority for stating that it is the intention of the company to place all of its securities on the New York Board, it being understood that it will be relieved from the necessity of having a general registry of the stock in New York, which is well known was the reason for the withdrawal of its shares from the New York Stock Exchange some years ago. The Fidelity Insurance, Trust & Safe Deposit Company, of this city, will act as the general register of the stock in New York, and the Farmers' Loan & Trust Company, of New York, who were the old agents of the Reading Company for this purpose, will have charge of the transfers and register of such stock as is dealt in in New York. We understand that one of the principal reasons of the company for again placing its securities in New York has been a desire to have the benefit of the New York money market for loans made upon the bonds of the company as collateral. It is well known that the Reading Company has $5,000,000 of unissued general mortgage bonds, upon which, we are told, the amount due to the various banks in New York and Philadelphia which hold them as collateral has been reduced to below $2,000,000, and that they have also some $7,000,000 or more of unissued income mortgage bonds upon which very little has been borrowed. The margin upon the two issues of bonds belonging to the company is, therefore, many millions of dollars, and amply sufficient, it is believed, for all its future financial requirements, until some general scheme, which, we understand, is now being considered, is brought forward for the final relief of the company from all financial embarrassments. It is understood that several of the New York banks and trust companies have expressed themselves as quite willing to lend money upon the bonds of the Reading Railroad Company, if the requirements of their institutions are complied with, an imperative one of which is that all securities upon which they loan money should be quoted upon the New York Stock Exchange, and we cannot, therefore, but think that the action of the company in this matter has been wise and prudent."

Quakertown & Delaware River.—It is proposed to build a railroad from Quakertown, on the North Pennsylvania road, in Bucks County, Pa., northwest to the Delaware near Durham. The distance is about 14 miles through a very fine farming country, and the road could be made to serve some large limestone and slate quarries.

St. Louis, Kansas & Arizona.—Track on this road is now laid to Garnett, Kan., 21 miles southwest from Ossawatomie, the last point noted, and 28 miles from the starting point at Paola. Work on the extension of the line is progressing well beyond Garnett.

St. Paul & Sioux City.—The track on the Ft. Dodge Branch is now laid to Blue Earth City, Minn., 34 miles from the junction at Crystal Lake. It will be formally opened in a few days with a celebration at the new terminus.

On the Black Hills Branch trains begin to run this week to Summit Lake, 32 miles westward from the main line at Heron Lake, and the centre of a very fine country which is fast filling up.

Track on the Rock Rapids Branch is now laid from the starting point at Luverne, Minn., down the Rock River to Doon, in Lyon County, Ia., a distance of 28 miles. Trains now run regularly to Rock Rapids, 16 miles from Luverne, and will run through to Doon about Nov. 1.

Shenandoah Valley.—Tracklaying on this road was resumed some weeks ago, and the rails have now reached White Post, nine miles south by west from the late terminus at Berryville, and 33 miles from the Potomac River.

Silver Lake.—The change of gauge of this road was not to 3 ft., as heretofore stated, but to the standard, 4 ft. 8½ in., the road having been formerly of 6 ft. gauge, the same as the Erie, which is its only connection. The term "narrow-gauge," as used by local papers, was, in this case, misleading: it is now generally taken to mean 3 ft., but in a district where 6 ft. has been the prevailing-gauge, it is very apt to be used to mean anything less than that. The former name of the road was the Rochester & Pine Creek, though it has been known by the present title for several years; the Rochester, Hornellsville & Pine Creek was a different company, though of very similar name. The Silver Lake road extends from Perry, N. Y., to Gainesville, 6½ miles.

Springfield, Jackson & Pomeroy.—The sale of this road to General Thomas, of Columbus, O., has been confirmed by the court. A proposition from other parties to pay $500,000 for the road was made to the court, but afterward withdrawn.

Texas & Pacific.—Notice is given that 71 first-mortgage bonds of this company have been drawn according to the terms of the mortgage, and holders should present them for payment at the office of the Trustees, No. 275 South Fourth street, Philadelphia. Interest on the drawn bonds will cease March 1, 1880. The numbers drawn are : 208, 374, 388, 442, 460, 496, 517, 557, 627, 642, 788, 801, 812, 824, 915, 995, 1048, 1093, 1112, 1139, 1141, 1143, 1206, 1246, 1260, 1308, 1333, 1384, 1420, 1481, 1560, 1577, 1612, 1624, 1843, 1854, 1883, 1925, 1927, 1991, 2018, 2109, 2169, 2360, 2366, 2461, 2545, 2586, 2688, 2758, 2796, 2808, 2831, 2859, 2896, 2922, 3082, 3159, 3207, 3211, 3219, 3253, 3254, 3271, 3277, 3283, 3285, 3313, 3449, 3489 and 3533.

Vermont & Canada.—At the annual meeting, Oct. 16, the stockholders voted to approve and ratify the action of the directors, in executing a mortgage and issuing $500,000 bonds, to retire the securities known as the Vermont Central and Vermont & Canada guarantee notes.

Wabash, St. Louis & Pacific.—A dispatch from St. Louis, Oct. 20, says : "The last order, to complete the rolling stock and general outfit of the Wabash, St. Louis & Pacific Railway, was given to-day by Benjamin W. Lewis, Jr., President of the St. Louis, Kansas City & Northern road. The new equipment will consist of 30 locomotives, 15 passenger coaches, and 3,100 freight cars, of which 500 will be stock cars, and 400 coal cars. The whole will cost $1,900,000. They will be delivered by March 1, next."

Warwick Valley.—It is proposed to build a branch line about four miles long from near Warwick, N. Y., to the Parrott and Standish iron mines, with a sub-branch of two miles to reach other mines belonging to the Thomas Iron Company. The road is promised at least 40,000 tons of ore a year as soon as the extension to McAfee Valley, now in progress, is finished, provided this branch is built.

West Chester & Philadelphia.—This company is making surveys for a branch to run from Morton, Pa., east by south to Chester, about five miles. The object is to secure a branch to Chester and to the Delaware River wharves there.

West Jersey & Atlantic City.—The West Jersey Company has agreed to haul the trains of this road between Camden and Newfield, in case the road is built. The projectors expect to begin work very soon.

ANNUAL REPORTS.

The following is an index to the reports of companies which have been reviewed in previous numbers of this volume of the *Railroad Gazette* :

Central Pacific.

This company's report for the calendar year 1878, gives the length of line worked at the close of the year as follows:

	Miles.
Owned;	
Main Line, San Francisco to Ogden	883.23
Oregon Division, Roseville, Cal., to Redding	151.45
Visalia Division, Lathrop to Goshen	146.30
Oakland and Alameda branches	15.56
San Jose Branch, Niles to San Jose	17.54
Total	1,214.08
Leased;	
Southern Pacific, Goshen to Los Angeles	242.60
" " Los Angeles to Yuma	248.70
" " Los Angeles to Wilmington	22.30
" " Goshen to Huron	40.00
Total Southern Pacific	552.60
San Pablo & Tulare R. R.	46.52
Northern R. R. and Berkeley Branch	39.42
Northern R. R., Woodland to Willows	64.85
Los Angeles & Independence R. R.	16.69
Amador Branch, Galt to Ione	27.20
Los Angeles & San Diego R. R., Florence to Santa Ana	27.60
Stockton & Copperopolis R. R.	49.00
California Pacific R. R., including Water route from San Francisco to South Vallejo, 26 miles	139.02
	963.50
Total worked	2,177.58

The only change in line owned was the addition of 0.02 miles to the Alameda Branch. The line leased was increased by the opening of the Northern road from West Oakland to Martinez Junction, with some addition to Berkeley Branch, making 31.68 miles addition ; the extension of the Northern road from Williams to Willows, 25.61 ; the opening of the San Pablo & Tulare road from Martinez to Tracy, 46.52 miles, and the shortening of the Los Angeles & Independ-

ence road 0.32 mile. Net increase in mileage worked was 103.51 miles, making average mileage for the year 2,119 miles.

The railroad and floating equipment of the company is as follows, including that of leased lines:

	Owned.	Leased.	Total.
Locomotives	227	35	262
Passenger cars, all classes	202	37	239
Sleeping and parlor cars	41	....	41
Baggage, mail and express cars	51	12	63
Box cars	2,543	264	2,807
Flat cars	2,015	412	2,427
Oil cars	8	....	8
Caboose cars	73	3	76
Pay and other business cars	5	....	5
Wreck, tool, etc., cars	21	....	21
Hand and dump cars	552	218	770
Snow-plows	9	....	9
Floating:			
Ferry steamers	10	....	10
River steamers and tugs	12	....	12
Barges	14	....	14

Two tugs and 12 barges leased from the Southern Pacific and in use at Los Angeles were sold. Twelve passenger, 2 baggage, 4 station and 304 flat cars were built at Sacramento shops, either as additions or to replace cars destroyed.

The general balance sheet is as follows:

Capital stock		$54,275,500.00
Funded debt		56,394,000.00
Trustees of land grant mortgage		290,577.71
Unclaimed dividends		2,784.00
Hospital fund		73,894.25
Government bonds		27,855,680.00
Profit and loss		12,339,278.10
Balance of accounts		1,819,486.69
Total		$153,051,200.75
Construction	$134,650,527.89	
Equipment	7,956,113.66	
Real estate	1,480,267.67	
Shops	1,002,774.04	
Machinery in shops	689,378.69	
Furniture, telegraph instruments, safes, etc	154,499.38	
Steamers, Sacramento River	644,840.60	
Sinking fund No. 1, for redemption of convertible mortgage bonds	1,073,210.38	
Sinking fund No. 2, for redemption of California state aid bonds	634,486.00	
Sinking fund No. 3, for redemption of first-mortgage bonds of the company, Series A, B, C and D	634,486.00	
Sinking fund No. 4, for redemption of first-mortgage bonds of the company, Series E, F, G, H, and I	444,281.37	
Sinking fund No. 5, for redemption of first-mortgage bonds of the Western Pacific, Series A and B	78,866.21	
Sinking fund No. 6, for redemption of first-mortgage bonds of the California & Oregon, Series A and B	430,929.76	
Materials in shops	808,319.25	
" in store	18,353.58	
" for track repairs	342,884.92	
Fuel	498,381.61	
Cash	1,508,599.74	
		153,051,200.75

The amount of stock is unchanged; the bonded debt was increased by $1,509,000 during the year.

The statement of traffic for the year is as follows;

Train mileage:	1878.	1877.	Inc. or Dec.	P. c.
Passenger	2,058,559	1,946,199	I. 112,360	5.8
Freight	3,469,885	3,441,614	I. 28,271	0.8
Service and switching	1,323,726	1,226,581	I. 97,145	7.9
Total	6,852,170	6,614,394	I. 237,776	3.6
Passengers carried	6,979,188	6,820,556	I. 158,632	2.3
Passenger mileage	178,773,325	181,699,612	D. 2,926,287	1.6
Tons freight carried	1,787,642	1,522,572	I. 265,070	17.4
Tonnage mileage	392,949,592	363,542,310	I. 29,407,282	8.1
Av. train load:				
Passengers, number	86.84	93.36	D. 6.52	7.0
Freight, tons	113.23	105.63	I. 7.62	7.2

In this comparison, the year 1877 is made to include all the leased lines. A more detailed statement of passengers and freight carried is as follows:

	1878.	1877.	1876.
Passengers, through	63,494	78,282	98,420
" local, rail	1,161,092	1,080,253	691,282
" local, ferry	5,754,602	5,661,621	4,982,957
Total	6,979,188	6,820,556	5,772,659
Tons freight, local	1,209,873	971,678	925,311
" " through	180,072	173,240	188,774
" " company	302,842	377,657	329,001
Total	1,782,787	1,522,572	1,443,086

The average rate per passenger per mile was 2.95 cents in 1878, 3.02 in 1877, and 3.24 in 1876. The ferry passengers are those carried between San Francisco and Alameda and Oakland, who are carried a short distance in the cars, as well as over the ferry. The General Freight Agent's statement is as follows:

"Of the local freight, there was forwarded from the agricultural districts to the general markets, 160,462,250 pounds in 1877 and 622,409,320 pounds in 1878.

"The exhibit for 1878, as compared with 1877, in local freight, shows an increase of 38.19 per cent., or 668,665,210 pounds, and an increase in tons hauled one mile of 15.22 per cent.

"In through freights an increase of 3.95 per cent., or 13,664,669 pounds, and an increase in tons hauled one mile of 6.39 per cent.

"Company's freight hauled increased over previous year, 8.46 per cent., or 62,066,530 pounds, and a decrease of 0.60 per cent. in tons hauled one mile.

"Exclusive of grain hauled to the general markets, the local traffic shows an increase in 1878 of 12.99 per cent., or 206,718,140 pounds.

"There was an increase of 287.88 per cent. in tonnage, and 214.92 per cent. in earnings, of the grain traffic of 1878, as compared with 1877.

"This is largely due to the fact that the business of the California Pacific, the Northern Railway and the Stockton & Copperopolis was included for 1878, showing the rich grain producing districts through which they run to be of much importance to the system."

Locomotive service cost 30.81 cents per mile run, against 33.12 cents in 1877. The mileage of various classes of cars and their cost for repairs per mile run was as follows:

	Mileage. 1877.	Mileage. 1878.	Cost of repairs. 1877.	Cost of repairs. 1878.
Sleeping cars	1,727,252	1,745,861	4.84	3.84
Passenger cars	5,011,547	5,172,858	2.51	2.56
Baggage, mail, and express cars	3,388,146	3,704,051	1.68	1.11
Emigrant cars	2,384,931	2,235,516	1.42	1.86
Officers' cars	89,800	87,723	0.62	0.67
Freight cars	56,189,846	55,245,152	0.79	0.73
Foreign cars	2,859,516	5,174,803	0.33	0.31
Total	71,651,038	73,366,054	1.07	0.96

Mileage of Central Pacific cars on foreign roads was, in 1877, 6,603,358 miles; and in 1878, 3,903,094 miles.

A detailed statement of the earnings and expenses for the year is as follows:

Earnings.	Coin.	Currency.	
Freight	$7,620,644.75	$3,181,631.65	
Passenger	3,506,245.98	1,778,667.09	
Express	149,340.32	86,455.44	
Mail	....	438,799.61	
Miscellaneous	350,269.28	2,943.87	
Sleeping-car	68,553.50	93,445.00	
Telegraph	77,142.77	....	
Rental	62,413.69	3,561.02	
Baggage	17,670.69	33,441.83	
Mileage	13,772.63	3,110.59	
Wharfage	42,748.94	....	
	$11,908,802.55	$5,622,056.00	$17,530,858.55
Expense of superintendents	$71,122.74	....	
Station service	609,546.12	6,510.10	
Telegraph service	105,741.46	....	
Train service	511,433.23	220.55	
Sleeping car service	26,932.56	....	
Ferry service (Oakland)	416,981.48	30.60	
Ferry service (Vallejo)	229,512.08	....	
Lighterage and wharf service	48,091.57	....	
Locomotive service	1,716,058.83	....	
Snow service	57,556.76	....	
Repairs of track	1,757,140.16	316.97	
Repairs of snow sheds	23,860.12	....	
Repairs of bridges	158,272.29	....	
" of buildings	111,322.19	....	
Repairs of engines	424,842.86	....	
" of cars	706,184.67	1,176.41	
" docks	57,480.54	....	
Office expenses	218,885.77	83.33	
Stationery and printing	45,197.43	1,688.60	
Advertising	15,727.48	4,257.38	
Loss and damage to freight	5,493.41	2,354.67	
Damage — Persons and property	10,547.86	525.55	
Miscellaneous expense	75,775.70	4,281.33	
Water	67,491.21	36.00	
Ins. and loss by fire	36,776.81	12.50	
Leased railroads	1,215,129.90	18,888.60	
Mileage	....	16,826.26	
	$8,723,105.23	$57,507.25	
	....	8,723,105.23	
			$8,780,312.48
Gross earn. per mile			$8,750,546.07
Net earn. per mile			8,273.18
Per cent. of exps.			4,129.57
			50.08

A general comparison for three years is as follows:

	1878.	1877.	1876.
Earnings	$17,530,855.55	$16,471,144.11	$16,994,216.30
Expenses	8,780,312.48	7,774,417.76	7,857,211.57
Net earnings	$8,750,546.07	$8,696,726 35	$9,137,004.73
Average mileage	2,119	1,783	1,425

The profit and loss account for the year was as follows:

Balance to credit, Jan. 1, 1878		$8,656,466.02
Earnings for year 1878	$17,530,858.55	
Less expense of operating	8,780,312.48	
		8,750,546 07
Interest on sinking funds		118,702.29
Operating river steamers and barges		108,208.64
Land grant bonds redeemed with proceeds of land sales		1,151,000.00
Total		$18,784,923.02
Interest	$3,954,779.82	
Taxes	341,430.63	
General and miscellaneous expenses	646,363.08	
Legal expenses	107,771.65	
Civil engineering	23,045.55	
Discount on currency receipts	13,950.22	
Land department expenses	47,263.52	
Leased railroads to June 30, 1878	1,251,040.45	
Balance	12,339,278.10	
		18,784,923.02

The Chief Engineer reports renewals of 59.35 miles of track with steel, 1.62 miles with iron, and 397,730 new ties laid. The track was fully maintained and many improvements made in road and buildings. He also refers to the improvements in progress at Oakland, and recommends changes at Yuba and Feather rivers, to prevent damage by freshets.

The Land Agent reports for 1878 sales of 78,100.13 acres for $643,776.71. The foot-hills land of the Sierra Nevada have been found better than expected, but much trouble is caused there by the mineral reservations. The lands along the Humboldt in Nevada, formerly called desert, are now found very fertile when irrigated.

President Stanford speaks at considerable length of the new California constitution and its probable effects, predicting no permanent settlement of the railroad question unless it is upon a just and wise basis. While the constitution may injure existing railroads somewhat, it may also benefit them by preventing the building of competing roads. In conclusion he says:

"The changes in the organic law in relation to railroad corporations were undoubtedly influenced by the consideration that your company has received in some manner aid from county, state and national governments; but, as to what this aid was, there is unquestionably great misapprehension. The fact is, there has never been any donation made to your company, either by the national, the state or the county governments. The counties of Sacramento and Placer subscribed to the stock of your original company, and gave their bonds in payment. Afterward they disposed of their stock for as much as, or more than, the bonds were worth at the time they issued them. The city and county of San Francisco, apprehensive of possible liability for the debts of the company when its affairs did not look very bright, compromised with the company, and, in lieu of subscribing for stock, gave 400 of her bonds. The only aid rendered by the state was under contract to pay the interest on 1,500 of the company's bonds of $1,000 each—the company to pay the principal, and in return it was to render, and has been rendering, very important service. The aid derived from the government of the United States was its bonds loaned, and alternate sections of land given upon a contract very onerous upon your company, and of which only its possible want of ability to otherwise construct the road justified acceptance. Your company has not been enriched by donations. The county, state and national governments have, under their contracts, not only realized all, and more than they expected, but have had much the best of the bargain. If, when they made those contracts, they wanted something else than therein provided—a freer exercise of power of regulation, for instance—they ought to have so nominated in the bond. To claim and to take what is not so nominated is to take by the exercise of might, not of right. Under these contracts, the company owes the counties, the state and the United States, nothing but its good will and loyalty."

Indianapolis, Cincinnati & La Fayette.

This company owns a line from Cincinnati through Indianapolis to La Fayette, Ind., 179 miles; the Greensburg Branch from Greensburg, Ind., to some stone quarries, 5.5 miles; the Harrison Branch, from Valley Junction, O., to Harrison, 7 miles, and the Hardentown cut-off, used as part of the main line, 2.5 lines, making 194 miles in all, with 33 miles of sidings. The road is worked by Mr. M. E. Ingalls, Receiver in suits for foreclosure of mortgage, and his latest report is for the year ending June 30, 1879.

The equipment consists of 50 engines; 38 passenger, 3 parlor, 1 chair, 6 postal and 13 baggage cars; 658 box, 63 stock, 66 coal, 321 flat and 17 caboose cars; 1 pay, 2 camp and 3 tool cars. This is an increase from the previous year of 1 passenger, 12 stock and 38 flat cars, and a decrease of 2 engines, 7 box and 2 caboose cars.

Being a receiver's report, no general balance-sheet is given, but the following statement of liabilities, June 30, 1879, is presented:

Stock ($28,800 per mile)		$5,587,150.00
Bonds ($58,382 per mile)		11,326,050.00
Floating debt, company's		140,584.67
" " Receiver's		233,182.93
Total		$17,286,967.60
Indianapolis & Cincinnati, first-mortgage bonds of 1858		$1,600,000
Cincinnati & Indiana, first-mortgage bonds of 1862		499,000
Cincinnati & Indiana, second-mortgage bonds of 1867		1,501,000
Cincinnati & Indiana, second-mortgage funded coupons		44,000
Ind., Cin. & L. bonds of 1867	$2,800,000	
Unpaid coupons on same, with interest	934,000	
		3,734,000
Funded coupons from bonds of 1867		79,000
Equipment bonds		362,000
Total prior liens ($40,304 per mile)		$7,819,000
Ind., C. & L. bonds of 1869, third mortgage	$1,767,000	
Funded coupons from same	320,750	
		2,087,750
Ind., C. & L. funded debt bonds of 1873		1,419,300
Total ($58,382 per mile)		$11,326,050

An effort is now being made to unite the bondholders in some plan of reorganization, which shall relieve the company permanently from its too heavy funded debt, and leave it with only such bonds as it can fairly expect to pay interest on regularly.

The traffic of the road for the year was as follows:

	1878-79.	1877-78.	Inc. or Dec.	P. c.
Train mileage	1,160,551	1,135,517	I. 25,034	2.2
Mileage of passenger-train cars	2,600,729	2,598,437	I. 2,292	0.1
Mileage of freight cars	3,804,098	3,345,626	I. 458,472	13.7
Passengers carried	521 580	549,587	D. 28,007	5.1
Passenger mileage	17,689,617	18,971,743	D. 1,282,126	6.8
Tons freight carried	540,815	457,135	I. 83,680	18.3
Tonnage mileage	....	41,000,163	....	....
Average rate:				
Per passenger per mile	2.72 cts.	2.67 cts.	I. 0.05 cts.	1.0
Per ton per mile	1.52 "	1.68 "	D. 0.16 "	9.5

Average mileage was 24,350 miles per engine, and 42,635 miles per passenger-train car; 24.7 per cent. of the freight car mileage was of empty cars. Locomotive service cost 15.31 cents per mile; passenger car expenses, repairs, heating, lighting, etc., were 1.28 cents per mile, and freight car expenses, 1.71 cents per mile. Through passenger trains earned $1.35 per mile run; commutation and special trains, $0.50; freight trains, $1.70. The average cost per mile for all trains was 71.4 cents.

The Receiver's account for the year was as follows:

Balance, June 30, 1878		$283,423.98
Earnings		1,342,701.45
Total		$1,626,125.43
Expenses and taxes	$834,781.15	
Interest and bond interest	408,361.64	
Accounts charged off	755.00	
		1,243,897.79
Balance, June 30, 1879		$382,227.64

The interest paid on bonds during the year was $391,036; the balance of $17,325.64 was on other debt.

The earnings of the year were as follows:

	1878-79.	1877-78.	Inc. or Dec.	P. c.
Passengers	$460,431.99	$493,964.84	D. $33,552.85	6.8
Freight	763,420.02	683,470.23	I. 79,949.79	11.7
Express and mail	80,107.49	89,132.97	D. 9,025.48	10.1
Rents, etc	38,741.95	42,499.09	D. 3,757.14	8.8
Total	$1,342,701.45	$1,309,087.13	I. $33,614.32	2.6
Working expenses	799,350.31	771,506.97	I. 27,852.34	3.6
Taxes	35,421.84	43,191.80	D. 7,769.96	18.0
Total	$834,781.15	$814,698 77	I. $20,082.38	2.5
Net earnings	$507,920.30	$494,388.36	I. $13,531.94	2.7
Gross earn. per mile	6,921.14	6,818.16	I. 102.98	1.5
Net earn. per mile	2,618.15	2,574.94	I. 43.21	1.7
Per cent. working expenses	59.53	58,93	I. 0.60	1.0
Per cent. all expenses	62.17	62.23	D. 0.06	0.1

The net earnings for the year were 4.48 per cent. on the entire bonded debt, or 6.50 per cent. on the prior liens as reported above.

Receiver Ingall's report says: "All expenses for construction of new side tracks, etc., have been charged directly to expenses. Rates have been low. These causes combined have carried our operating expenses up to 59.53 per cent. With this expenditure the property has been materially improved. Twenty-five miles of main track has been renewed with steel, making 116 miles in all laid with this material; 76,420 new ties were put in the track and the ballast improved; 11,440 feet of new sidings laid, making a little over 227 miles of track owned by the company. * * *

"Our arrangements with connecting lines have continued to work well, and as good rates have been obtained as was possible with the extreme low rates made by the trunk lines during a large portion of the year.

"Since the last report was published an agreement of reorganization has been prepared and signed by a large majority of the parties in interest, and a speedy sale is looked for.

"I believe if all the parties in interest will join, they will in time get back a portion, if not all, of their losses in the securities of this company. They have a valuable property if it can be put on a sound financial basis.

"All the employés during the year have labored with zeal and fidelity."